CUNY School of Professional Studies  
at the Graduate School and University Center

Proposal to Establish a  
Bachelor of Science in Information Systems

Anticipated Start  
Fall 2014

Approved by the  
School of Professional Studies Curriculum Committee  
September 13, 2013

Approved by the  
School of Professional Studies Governing Council  
October 10, 2013

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ABSTRACT

The Graduate School and University Center of The City University of New York (CUNY), through the School of Professional Studies (SPS), proposes to launch a new online Bachelor of Science degree program in Information Systems with two tracks, a general IS track and a Management Information Systems track. The goal of the degree is to provide students with an academically rigorous, flexible, and hands-on curriculum that also aligns with industry standards for certification, preparing students for jobs in both large enterprises and burgeoning startup companies across a range of industries. The curriculum, based on recommendations by the Association for Information Systems (AIS) and the Association for Computing Machinery (ACM), supports the development of I-shaped skills—where the horizontal top of the “I” corresponds to the student’s broad set of general IS competencies and the vertical line down the center of the “I” represents the student’s deep skills in one or two specific IS domains. The base of the “I” corresponds to broad general knowledge of a particular industry vertical. The program is designed to foster an ethos of innovation, entrepreneurship, and value creation that will guide students’ contributions to society, the economy, and the organizations for which they work or lead.
## Application for Registration of a New Program

This application is for New York degree-granting institutions seeking to register a new program that is below the doctoral level. Save this file, enter the requested information, and submit to the State Education Department.

- Proposals for new distance education, teacher certification, educational leadership certification, and professional licensure programs may require additional information, in addition to this core application.
- Certificate and advanced certificate proposals: use the certificate forms at [www.highered.nysed.gov/ocue/](http://www.highered.nysed.gov/ocue/). This expedited option is not available for teacher, educational leader, or professional certification/licensure programs.

### Item | Response (type in the requested information)
---|---
Program type | Check program type(s)  
- General academic program
- Program to prepare certified teachers or certified educational leaders
- Program to prepare licensed professionals

#### Institution name and address
CUNY School of Professional Studies  
Graduate School and University Center  
365 Fifth Avenue, Suite 3300, New York, NY 10016  
**Additional information:**
- Specify campus where program will be offered, if other than the main campus:
- If any courses will be offered off campus, indicate the location and number of courses and credits:

#### Program title, award, credits, and proposed HEGIS code
Program title: B.S. in Information Systems  
**Award** (e.g., B.A., M.S.): B.S.  
Credits: 120  
Proposed HEGIS code: TBD

#### Program format
Check all program scheduling and format features that apply:  
(See definitions)

1. **Format:** _Day _Evening _Weekend _Evening/Weekend

2. **Mode:** _Standard _Independent Study _External _Accelerated _Distance Education (submit distance education application with this proposal)

3. **Other:** _Bilingual _Language Other Than English _Upper Division Program

#### Diploma Programs
If the program is credit bearing and will lead to a Diploma or Advanced Diploma, indicate the registered degree program(s) to which the credits will apply:

**Contact person for this proposal**
Name and title: George Otte, Associate Dean of Academic Affairs  
Telephone: 212 817-7145  
Fax: 212 817-2990  
E-mail: George.Otte@mail.cuny.edu

**CEO (or designee) approval**
Name and title: John Mogulescu, Dean of the School of Professional Studies

Signature and date: October 10, 2013

If the program will be registered jointly with another institution, provide the following information:

**Partner institution’s name:**
Name and title of partner institution’s CEO:  
Signature of partner institution’s CEO:
1. Program Description and Purpose
   a) Provide a brief description of the program as it will appear in the institution’s catalog.
   Answer included in narrative.
   b) List educational and (if appropriate) career objectives.
   Answer included in narrative.
   c) How does the program relate to the institution’s mission and/or master plan?
   Answer included in narrative.
   d) Describe the role of faculty in the program’s design.
   Answer included in narrative.
   e) Describe the input by external partners, if any (e.g., employers and institutions offering further education).
   Answer included in narrative.
   f) What are the anticipated Year 1 through Year 5 enrollments?
   Answer included in narrative.

2. Sample Program Schedule
   Complete Table 1a (for undergraduate programs) or Table 1b (for graduate programs).
   • If the program will be offered through a nontraditional schedule, provide a brief explanation of the schedule, including its impact on financial aid eligibility.
   • For existing courses that are a part of the major, submit a copy of the catalog description. For undergraduate programs, provide syllabi for all new courses in the major; for graduate programs, provide syllabi for all new courses. Syllabi should include a course description and identify course credit, objectives, topics, student outcomes, texts/resources, and the basis for determining grades.

3. Faculty
   a) Complete the faculty tables that describe full-time faculty (Table 2), part-time faculty (Table 3), and faculty to be hired (Table 4), as applicable. Faculty curricula vitae should be provided only by request.
   b) What is the institution’s definition of “full-time” faculty?
   Answer included in narrative.

4. Financial Resources and Instructional Facilities
   • Summarize the instructional facilities and equipment committed to ensure the success of the program.
   Answer included in narrative.
   • Complete the new resources table (Table 5).

5. Library Resources
   a) Summarize the analysis of library resources for this program by the collection librarian and program faculty. Include an assessment of existing library resources and their accessibility to students.
   Answer included in narrative.
   b) Describe the institution’s response to identified needs and its plan for library development.
   Answer included in narrative.

6. Admissions
   a) List all program admission requirements (or note if identical to the institution’s admission requirements).
### 6TU Word

<table>
<thead>
<tr>
<th>6TU PDF</th>
</tr>
</thead>
</table>

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**b)** Describe the process for evaluating exceptions to those requirements.

*Answer included in narrative.*

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**c)** How will the institution encourage enrollment by persons from groups historically underrepresented in the discipline or occupation?

*Answer included in narrative.*

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### 7. Academic Support Services

Summarize the academic support services available to help students succeed in the program.

*Answer included in narrative.*

---

### 8. External Review of Graduate Degree Programs

If the proposal is a graduate degree program below the doctoral level, submit a copy of an evaluation [Word](#) [PDF](#) of the program by a recognized expert in the field who has been approved in advance by the State Education Department. In addition, submit the institution's response to the evaluation and highlight how the proposal was modified in response to the reviewer's comments.

---

### 9. Credit for Experience

If this program will grant substantial credit for learning derived from experience, describe the methods of evaluating the learning and the maximum number of credits allowed.

*Answer included in narrative.*

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**Items 10 through 12 are for general academic and professional licensure program proposals only.**

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### 10. Program Assessment and Improvement

Summarize the plan for periodic evaluation of the new program, including the use of data to inform program improvement.

*Answer included in narrative.*

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### 11. New/Emerging Field and Allied Health Areas (Undergraduate Degree Programs)

If the proposal for an undergraduate degree program falls into any of the following categories, submit a copy of an evaluation [Word](#) [PDF](#) of the program by a recognized expert in the field who has been approved in advance by the State Education Department. In addition, submit the institution's response to the evaluation and highlight how the proposal was modified in response to the reviewer's comments.

**Categories:**
- The program's subject matter represents a new or emerging field.
- The program is in an allied health area, unless the institution can demonstrate that the program is accredited by an accrediting body for college-level programs in the field.

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### 12. Transfer to Baccalaureate Programs

If the program will be promoted as preparing students for transfer to a baccalaureate program, provide a copy of an articulation agreement with at least one institution.
NARRATIVE

Purpose and Goals

To help address the current and projected growth in the tech sector, the CUNY School of Professional Studies (SPS) proposes to establish a new Bachelor of Science (B.S.) in Information Systems (IS).

Program Goals

The purpose of the proposed B.S. in Information Systems is to create highly skilled, motivated, and self-directed graduates who seek to have a positive impact on the economy and society in general. The program goals include the following:

- Provide students with a rigorous but flexible curriculum that creates tangible skills for in-demand, high-growth jobs;
- Foster an ethos of innovation, entrepreneurship, and value creation among students that guides their contributions to society, the economy, and the organizations they work with;
- Support student development of I-shaped skills—where the horizontal top of the “I” corresponds to the student’s broad set of general IS competencies and the vertical line down the center of the “I” represents the student’s deep skills in one or two specific IS domains. The base of the “I” corresponds to broad general knowledge of a particular industry vertical;
- Prepare students for in-demand industry certifications, recognizing that some professional credentials require some years of experience in the practice;
- Require students to build a portfolio of technology projects that demonstrates the skills and competencies that they have developed during the program; and
- Help students build a solid foundation of skills, knowledge, and experiences onto which they will be able to integrate new tools and technologies in this constantly evolving field.

Learning Outcomes

To achieve these programmatic goals, the faculty has identified the following learning outcomes that will be incorporated throughout the curriculum: Students will be able to:

- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Manage technology projects through the product (often software and data-related) development lifecycle;
- Assess the impact and strategic value of emerging technologies;
- Apply systems-thinking and design-thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively both verbally and in writing, and make ethical decisions.

The proposed degree, which features two tracks—one titled General IS and the other Management Information Systems (MIS)—is timely and addresses emerging issues associated with information systems faced by both large enterprises and burgeoning startup companies. Throughout the curriculum, students will be pushed to think about the role of information systems professionals in innovation, entrepreneurship, and value creation. The goal is more than for graduates to become good employees; they will be prepared to take leadership roles as creators, influencers, and catalysts of economic and social change. The curriculum is built on a core that is wholly in line with the recommendations of the Joint IS Curriculum Task Force of the Association for Information Systems (AIS) and the
As a way of ensuring that graduates are well versed in a broad cross-section of computing paradigms, relevant now and well into the future, courses will include Business Process Design and Workflow Analysis, Enterprise Architectures and Applications, Web Programming and Mobile App Development, Principles of Informatics, Social Computing, Computer and Network Security, and Computer Forensics. In addition, an important and unique aspect of the curriculum is that students will be required to develop a deep and solid grounding in a specific field in which they can apply their IS skills. The entire curriculum will be infused with case studies and hands-on projects to ensure graduates are practical and employable.

This proposed degree will be available entirely online. However, students may also have the opportunity to enroll in courses offered in hybrid and in-person formats.

**Impact on the School of Professional Studies**

Home to CUNY’s first fully online degrees and groundbreaking Master’s degree programs, the School of Professional Studies has found new ways of fulfilling CUNY’s mission of access; reaching students with innovative modes of instruction; offering cutting edge courses and curricula; and delivering learning tailored for diverse requirements and constituencies. The proposed program will expand the School’s technology-oriented program offerings, providing a potential feeder program for the recently launched Master of Science in Data Analytics. The hallmark of both degree programs is a very practical and applied nature which prepares students for careers in emerging parts of the technology field. The proposed program also provides an opportunity for students in other majors, like business or health information management, to complement the skills with in-demand technology skills. The program makes sense in terms of expertise and cost sharing as well. Several of the faculty and industry connections from the M.S. in Data Analytics can be included in activities for the proposed B.S. In addition, the curriculum structure of the B.S. purposefully leverages a number of existing non-IS courses currently offered at the School of Professional Studies.

**Need and Justification**

The need for more graduates with computing degrees, including information systems degrees, is a function of both projected labor market demand as well as supply of graduates with the required skills. While labor market demand is expected to grow for computing jobs, including titles especially suitable for graduates of the proposed degree, the supply of graduates, though growing in recent years, had plunged during the mid-2000s and there is still ground to be made up.

**Employment Projections**

According to the most recent Bureau of Labor Statistics (BLS) figures, updated in March of 2012, most computing jobs are forecast to exhibit healthy growth through 2020, despite the continued sluggishness of the overall economy. As indicated in Figure 1, even the slowest growing of computing jobs—the last three titles in the table, computer & information systems managers, computer support specialists, and computer programmers—are expected to grow at an average rate (between 10 and 19 percent). Admittedly, not all computing titles will be an ideal fit for graduates of the proposed program; however, the titles especially relevant for the proposed B.S. in Information Systems include network and computer system administrators; computer systems analysts; web developers and computer network architects; computer & information systems managers; and computer support specialists. Of these five job categories, two of them are expected to grow at an average rate, while three are expected to grow faster than average, somewhere in the 20 to 28 percent range.

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Figure 1. National Job Growth Forecast

<table>
<thead>
<tr>
<th>Job title</th>
<th>May 2010 employment</th>
<th>2020 jobs forecast</th>
<th>Job growth forecast</th>
<th>% job growth forecast</th>
<th>Expected growth rate thru 2020</th>
<th>May 2010 median wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems software developers</td>
<td>392,300</td>
<td>519,400</td>
<td>127,100</td>
<td>32%</td>
<td>Much faster than average</td>
<td>$94,180</td>
</tr>
<tr>
<td>Database administrators</td>
<td>110,800</td>
<td>144,800</td>
<td>34,000</td>
<td>31%</td>
<td>Much faster than average</td>
<td>$73,490</td>
</tr>
<tr>
<td>Network &amp; computer system administrators</td>
<td>347,300</td>
<td>443,800</td>
<td>96,500</td>
<td>26%</td>
<td>Faster than average</td>
<td>$69,160</td>
</tr>
<tr>
<td>Software applications developers</td>
<td>520,800</td>
<td>664,500</td>
<td>143,700</td>
<td>28%</td>
<td>Faster than average</td>
<td>$87,790</td>
</tr>
<tr>
<td>Computer systems analyst</td>
<td>544,400</td>
<td>664,800</td>
<td>120,400</td>
<td>22%</td>
<td>Faster than average</td>
<td>$77,740</td>
</tr>
<tr>
<td>Information security analysts, Web developers, and Computer network architects</td>
<td>302,300</td>
<td>367,900</td>
<td>65,600</td>
<td>22%</td>
<td>Faster than average</td>
<td>$75,660</td>
</tr>
<tr>
<td>Computer &amp; information systems managers</td>
<td>307,900</td>
<td>363,700</td>
<td>55,800</td>
<td>18%</td>
<td>About average</td>
<td>$115,780</td>
</tr>
<tr>
<td>Computer support specialists</td>
<td>607,100</td>
<td>717,100</td>
<td>110,000</td>
<td>18%</td>
<td>About average</td>
<td>$46,260</td>
</tr>
<tr>
<td>Computer programmers</td>
<td>363,100</td>
<td>406,800</td>
<td>43,700</td>
<td>12%</td>
<td>Average</td>
<td>$71,380</td>
</tr>
</tbody>
</table>


There are a number of factors that the BLS expects to contribute to these strong growth numbers, including the increasing importance of IT to the healthcare field, increased demand from small- and medium-sized businesses for IT consultants, the rise of mobile computing, and the constant demand for new and updated technology. Other factors transforming the information technology field and sure to have reverberations on employment demand for information systems professionals are the rise of cloud computing, social computing, big data, cheap storage and the primacy of technology to business, where it’s not just supporting business but is also a strategic driver of business.

To put these numbers in the context of all science and technology occupations, according to the report STEM Education: Preparing for the Jobs of the Future by the Joint Economic Committee of the U.S. Congress, computing occupations, including jobs that would require an information systems degree, are expected to grow at a faster rate than all STEM (Science, Technology, Engineering, Math) occupations, and STEM occupations in turn are expected to grow at a faster rate than all occupations between 2010 and 2020. More specifically, by 2020, the computing
occupations are expected to have grown 30 percent from a 2006 baseline, almost 10 percent more than the life science occupations (see Figure 2), the next fastest growing STEM category.³

Closer to home, the local employment projections for New York City and Long Island from the New York State Department of Labor show similar, if slightly less dramatic, growth trends than the national BLS projections (See Figure 3).

Figure 3. Local Job Growth Forecast 2010-2020

<table>
<thead>
<tr>
<th>Occupation</th>
<th>NYC</th>
<th>Long Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Information Systems Managers</td>
<td>14.8%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>19.82%</td>
<td>13.73%</td>
</tr>
<tr>
<td>Computer Programmers</td>
<td>11.24%</td>
<td>7.43%</td>
</tr>
<tr>
<td>Software Developers, Applications</td>
<td>22.41%</td>
<td>23.66%</td>
</tr>
<tr>
<td>Software Developers, Systems Software</td>
<td>36.45%</td>
<td>25.35%</td>
</tr>
<tr>
<td>Database Administrators</td>
<td>21.55%</td>
<td>18.92%</td>
</tr>
<tr>
<td>Network and Computer Systems Administrators</td>
<td>22.24%</td>
<td>18.64%</td>
</tr>
<tr>
<td>Computer Support Specialists</td>
<td>13.91%</td>
<td>8.82%</td>
</tr>
<tr>
<td>Information Security Analysts, Web Developers, and Computer Network Architects</td>
<td>17.15%</td>
<td>17.30%</td>
</tr>
<tr>
<td>Computer Occupations, All Other</td>
<td>7.37%</td>
<td></td>
</tr>
</tbody>
</table>

Source: New York State Department of Labor Long-Term Occupational Employment Projections, 2010-2020

The local data, of course, does not consider the fact that New York is part of a regional labor market, and that graduates of the proposed program who seek work locally may go beyond city and state borders to New Jersey or Connecticut. Still, employment prospects overall for graduates with technology skills seem promising.

**Today’s Local Labor Market**

With the support of the Labor Market Information Service at CUNY, three months of job posts in New York City between September and December 2012 were analyzed. As summarized in Figure 4, computer and mathematical jobs tied for third place among the types of positions most frequently posted, with a total of just over 38,000 job posts, behind management jobs and office and administrative support jobs. But, the total number of technology job posts is actually higher given that 7 percent of posts in the management category—just over 3,000—are for computer and information systems managers. This brings the total job posts to 41,000.

Of the 41,000 computer and mathematical job posts, which were spread across many industries, the leading ones were, in order of posts, professional and scientific services; information; finance; administration and support; and manufacturing. This is partly explained by the infusion of technology and computing across all industries, making demand for workers with computing expertise virtually universal. Long gone are the days when tech workers were to be found primarily in technology companies. Furthermore, the tide of outsourcing has been reversing due to increasing labor costs in India, Russia, and China as well as the overwhelming number of unmet expectations from foreign service providers.

It should also be noted that though the computer science, information systems, and math disciplines account for only about 3 percent of all undergraduate degrees conferred in a given year in the U.S., the jobs posted in the period examined here for these same bachelor’s degree holders account for over 11 percent of all positions, another indicator of the positive potential employment prospects that should await graduates.

The most posted computer and mathematics job positions are listed in Figure 5. Interestingly, this roughly parallels the BLS job growth projections, with more posts for the faster growth job titles (web developers and computer support analysts) than the slower growth job titles (computer support specialists and computer programmers).

A closer look at 1,000 of the jobs posted—not a statistically random sample—found the following average salaries ranging from approximately $56 to $91K as shown in Figure 6. Note that these are generally higher than average salaries posted by the Bureau of Labor Statistics, which is likely due to the higher cost of living in New York.
The data cited here supports our argument that the labor market will drive demand for computing degrees in general and the proposed B.S. in Information Systems degree in particular, and that graduates of this program will be in a favorable position when they enter the labor market.

**Supply of STEM Graduates**
Information Systems is among the disciplines that make up STEM (Science, Technology, Engineering and Math)—typically defined to include “life sciences (except medical sciences), physical sciences, mathematics and statistics, computing and information technologies, and engineering. In recent years, concern has been growing about whether the supply of graduates prepared to enter the STEM-based workforce, today and in the future, will be sufficient. As such, growing this future workforce has been a significant policy goal of both the Obama administration and Congress. As noted on the administration’s Office of Science and Technology Policy website, “a world-class STEM workforce is essential to virtually every goal we have as a nation—whether it’s broadly shared economic prosperity, international competitiveness, a strong national defense, a clean energy future, and longer, healthier lives for all Americans.” In pursuit of this, the administration has supported a number of initiatives to develop this workforce, among them initiatives to improve STEM education.

In *STEM Education: Preparing for the Jobs of the Future*, referenced earlier, the Committee makes a case for the need for more STEM-educated workers. The report argues that given the size of the U.S. and the number of college graduates it produces, relative to other developed countries (those countries that are a part of the Organisation for Economic Co-operation and Development) the U.S. is far behind its peers in STEM degree production, ranking 27th by one measure, and 23rd by another. Its concern does not come simply from an aspirational desire for the country to be a leader in this area, but rather a practical worry for the increasing gap between what the labor market is demanding in this area and what the higher education system is producing. The proposed B.S. in Information Systems will make a small contribution to adding more STEM graduates to the existing supply, helping to close the gap that has become a growing concern of the nation’s leaders.

**Salaries**
In addition to positive employment projections, there are several other aspects of jobs in the computing fields that make them attractive. First, all the computing job titles in Figure 7 that are relevant to this degree require at most a bachelor’s degree to attain an entry-level position. Second, with the exception of computer support specialists, the one title that requires only an associate’s degree, the median wage of those titles of relevance is a healthy $69,000. One need not look very hard to find other external validation that an IS degree is thought to be a good investment. In the book *College Majors: Handbook with Real Career Paths and Payoffs*, the authors, including two faculty at Drexel University, discuss the best fields for college graduates. With regard to the highest paying jobs that require only a bachelor’s degree, the authors rank information systems 17 among 25 top fields of study, citing a median income of $62,000. And according

<table>
<thead>
<tr>
<th>Job Title</th>
<th>SOC Job Code</th>
<th>Avg. Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Support Specialists</td>
<td>15104100</td>
<td>$55,971</td>
</tr>
<tr>
<td>Information Technology Project</td>
<td>15109911</td>
<td>$75,425</td>
</tr>
<tr>
<td>Web Developers</td>
<td>15109904</td>
<td>$76,742</td>
</tr>
<tr>
<td>Database Administrators</td>
<td>15106100</td>
<td>$85,387</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>15105100</td>
<td>$91,459</td>
</tr>
</tbody>
</table>

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to Kiplinger, the personal finance advisors, Management Information Systems (MIS) is one of the best college majors today. The publication analyzed the unemployment rates and salaries for graduates of the 100 most popular college majors, using data from Georgetown University’s Center on Education and the Workforce and Payscale.com. MIS ranked ninth on their list of 10 best majors. Kiplinger found an overall median salary of $71,000, a median salary for recent grads of $51,000, and a low overall unemployment rate of 4.2 percent. The National Association of Colleges and Employers has not disputed either of these sources. According to their Job Outlook 2013 survey, the second most in-demand major from the class of 2013 for employers is expected to be computer and information science graduates, closely followed by management information systems graduates in sixth place.

If the past is a predictor of the future, the strength of the IT labor market throughout the most recent recession provides further evidence that IT professionals will remain in demand. In the first quarter of 2012, the unemployment rate among IT professionals was half of the national average, 4.4 percent. This has been consistent in recent years; even prior to the recession, unemployment for IT workers was below the national average.

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9 It should be noted that in May of 2013, the Georgetown University Center on Education and the Workforce released a report, Hard Times: College Majors, Unemployment, and Earnings, that found far less favorable prospects than Kiplinger for recent graduates with IS degrees. The unemployment cited in Hard Times for recent IS graduates, defined as those between the ages of 22 and 26, is 14.7%. This rate then precipitously drops to 4.4% by time one becomes experienced, defined as between the ages of 30 and 54. We believe that these numbers may be partially explained by the fact that new graduates with no practical experience may have some difficulty finding a position after they graduate; a result of employers who are hesitant to hire individuals who have not demonstrated their knowledge. The proposed program, however, which stresses applied skills and practical experience, including encouraging students to pursue internships, will attempt to address this. In addition, the proposed program goes further to increase new graduate experience by requiring them to complete a series of non-IS courses that ground them in some of the strategies, operations, and culture of a particular industry of the student’s choosing.
11 Ballenstedt, Brittany. IT Unemployment Rate Half the National Average. Nextgov as displayed on Mashable, 6 July 2012. Web. 18 December 2012.
12 STEM Education: Preparing for the Jobs of the Future.
**Student Interest and Enrollment**

In its most recent Taulbee survey of Computer Science and Information programs, the Computing Research Association reports that enrollment in computer science programs, which includes information systems programs, jumped 30% in 2011-2012. This follows several years of steady growth since 2008, which reversed several years of steep decline from 2004-2007. This decline is generally attributed to the DotCom bust as well as a flurry of corporate off-shoring for computer programming and network management jobs.\(^\text{13}\) However, as the job market expands along with long-term expectations for job growth for computer systems analysts, computer support specialists, and project managers, among other positions, enrollments are expected to follow.

Here in New York City, student interest in information systems programs is evidenced by enrollment growth in the high-quality, rigorous programs offered at CUNY. Not only are enrollments in information systems-related degree programs at the undergraduate level sizable, they have exhibited strong growth over the last five years, as illustrated in Figure 8 below. Collective growth was 25% over the five-year period 2007-2011, with trends at CUNY largely mirroring national trends reported in Taulbee, i.e., steady growth since 2008.

<table>
<thead>
<tr>
<th>Figure 8. Bachelor's Level Information Systems-Related Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Campus</strong></td>
</tr>
<tr>
<td>Baruch</td>
</tr>
<tr>
<td>Brooklyn</td>
</tr>
<tr>
<td>John Jay</td>
</tr>
<tr>
<td>Lehman</td>
</tr>
<tr>
<td>Medgar Evers</td>
</tr>
<tr>
<td>NYCCT</td>
</tr>
<tr>
<td>York College</td>
</tr>
<tr>
<td><strong>Annual Totals</strong></td>
</tr>
<tr>
<td><strong>Average Percentage Increase</strong></td>
</tr>
</tbody>
</table>

Source: CUNY Office of Institutional Research

In addition to positive enrollment trends in baccalaureate IS programs at CUNY, our community colleges have experienced similar gains. Figure 9 provides the details of the 26% growth in computer and information systems programs at CUNY community colleges over the last five years; these gains result in a total IS-related enrollment of 2,331 students. While not all of those individuals are viable candidates for the proposed IS program, some will be. To make sense of the data, we examined the total six-year transfer rate of community college IS students to baccalaureate programs. As Figure 10 shows in the yellow highlight, approximately 25% of the CUNY Community College computer and technology students starting in Fall 2006 transferred to a CUNY senior college program either with or without completing their associate’s degree. This does not account for students who may have pursued computer and technology degrees outside of CUNY.

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Figure 9. Associate’s Level Information Systems Related Programs (Feeder Programs)

<table>
<thead>
<tr>
<th>Campus</th>
<th>Major</th>
<th>Award</th>
<th>Fall 2007</th>
<th>Fall 2008</th>
<th>Fall 2009</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMCC</td>
<td>Computer Information Systems</td>
<td>AAS</td>
<td>245</td>
<td>292</td>
<td>274</td>
<td>295</td>
<td>325</td>
</tr>
<tr>
<td>BMCC</td>
<td>Computer Network Technology</td>
<td>AAS</td>
<td>264</td>
<td>311</td>
<td>343</td>
<td>406</td>
<td>432</td>
</tr>
<tr>
<td>BCC</td>
<td>Computer Information Systems</td>
<td>AAS</td>
<td>176</td>
<td>171</td>
<td>202</td>
<td>236</td>
<td>232</td>
</tr>
<tr>
<td>KCC</td>
<td>Computer Information Systems</td>
<td>AAS</td>
<td>196</td>
<td>23</td>
<td>266</td>
<td>283</td>
<td>240</td>
</tr>
<tr>
<td>LGCC</td>
<td>Computer Operations</td>
<td>AAS</td>
<td>220</td>
<td>201</td>
<td>208</td>
<td>197</td>
<td>182</td>
</tr>
<tr>
<td>LGCC</td>
<td>Computer Technology</td>
<td>AAS</td>
<td>214</td>
<td>216</td>
<td>219</td>
<td>234</td>
<td>231</td>
</tr>
<tr>
<td>NYCC</td>
<td>Computer Information Systems</td>
<td>AAS</td>
<td>273</td>
<td>316</td>
<td>334</td>
<td>368</td>
<td>402</td>
</tr>
<tr>
<td>QCC</td>
<td>New Media Technology</td>
<td>AAS</td>
<td>52</td>
<td>57</td>
<td>49</td>
<td>59</td>
<td>66</td>
</tr>
<tr>
<td>QCC</td>
<td>Computer Information Systems</td>
<td>AAS</td>
<td>207</td>
<td>195</td>
<td>206</td>
<td>218</td>
<td>221</td>
</tr>
</tbody>
</table>

Annual Totals: 1847 1782 2101 2296 2331

Average Percentage Increase: 26%

Note: In addition to enrollments listed above for IS-related majors, community colleges also enroll 1,522 computer science students, of which we assume some percentage will transfer to a less computational major like IS.

Source: CUNY Office of Institutional Research

Figure 10. Enrollment of Transfers from Associates Degree Programs in Computers and Technology to Baccalaureate Programs (Fall 2006 Cohort)

Source: CUNY Office of Institutional Research

Five Year Enrollment Projections
The majority of students in existing SPS degree and certificate programs are part-time students who work full time. Based on this experience, it is anticipated that most students in the new B.S. program will also be part-time students, taking two classes per semester. The enrollment projections in Figure 11 below show anticipated enrollment in the proposed program during the first five years of operation.

The initial enrollment goal will be 50 students in the first fall term and an additional 30 in the following spring. From there, enrollment projections are based on a combination of new enrollment (2.5% increase from fall to fall and 2% increase from spring to spring) and returning student enrollment following the retention rates for SPS’s baccalaureate programs.
Focus on Retention and Graduation
To address the critical issues of retention and graduation rates in the STEM fields, the following measures will be taken:

Admissions: To ensure that incoming students are a good fit for the program, significant weight will be given to the applicant’s essay, which will be used to assess the applicant’s written communication skills, clarity with regard to personal and professional goals, and how the degree fits in with these goals. Interviews, which can be used to assess the applicant’s self-direction, motivation, intellectual curiosity, and understanding of the field, may also be required of applicants at the discretion of the program’s academic director.

Mandatory Orientation: Students will be required to take a mandatory online orientation before starting their first semester’s courses. This orientation covers information about the School of Professional Studies, Blackboard and online learning. Students who fail to comply will be dropped.

Advisement: Each student will be assigned to a consortial faculty advisor who will be available to the student to help guide him or her through the program and toward a career pathway. One key advisement milestone will be selection of the “context courses” for students in the general track. Context courses, discussed later in the curriculum section, are a way of organizing major electives and are intended to allow students to customize the degree to their own interests—and hopefully help students stay engaged in the learning process and on the path to graduation. Selection of and any subsequent changes to the context courses will require the approval of the faculty advisor.

Advisement will also be used as a tool to help students maintain a continuous pace toward graduation. Advisors will strongly recommend that all students take at minimum two courses each semester. Students who fail to register for two courses will be asked to justify their decision. We argue that a commitment to taking a minimum number of courses will strengthen students’ commitment and ensure a descent pace towards graduation.

Professional Development Activities. The program will organize activities each semester that will expose students to different parts of the field and different career paths, and to others in the field as a way for students to network.
program will also try to intentionally connect students to local communities of practice like meetup groups and local chapters of professional organizations serving the IS field, including by establishing student chapters in one or two of the key professional associations. Students will also be required to develop a portfolio of their technology projects to demonstrate the skills and competencies that they developed during the program. Lastly, the curriculum will be designed to prepare students for in-demand industry certifications.

**Marketing Plan**
A broad-based recruitment plan will be developed by the SPS marketing and communications department with input from the academic director, faculty and staff. Marketing will take place through the usual avenues – the SPS Website, social media, fliers, postcard mailings and on Idealist or other public listservs.

The primary market for the proposed degree is candidates with immediate ties to CUNY or one of CUNY’s many governmental, non-profit, or union partners, including:

- CUNY community college students currently graduating from one of the feeder programs identified in Figure 9 above or from complementary programs such as computer science or business who want to pursue a bachelor’s degree. By design, transfer will be academically seamless;
- IT workers at New York City agencies, non-profits, and local unions who are seeking to advance in the field by attaining a bachelor’s degree while continuing to work. To broaden our reach to this market, we will form a program advisory board similar to the ones we have created for Health Information Management and for Labor and Urban Studies.
- CUNY employees, who enroll in small but measurable quantities in a number of other programs at the School of Professional Studies.

Beyond those possible students who already have a relationship with the University, we will reach out to the scores of New Yorkers who seek to complete their bachelor’s degree, a population to which we market the School’s other degree and certificate programs.

To reach both markets, a broad-based recruitment plan will be developed by the SPS marketing team with support of the program’s academic director and industry advisors. The campaign will target digital, relational, and print strategies, each of which will drive traffic to the program’s website. Further, we will aggressively pursue search engine optimization (SEO) strategies so that as people use search engines like Google and Yahoo (among others), the program’s website will appear high up on the search results list.

To connect interested students to the SPS website, we will use a variety of other digital marketing channels, including advertisements on websites that are relevant to non-degree and associate’s degree holders, e.g. the Institute for Electrical and Electronic Engineers. There are many other relevant practice-related websites and blogs (e.g. ZDNet and TechCrunch) that offer advertising space—many of which display advertisements based on user search terms and user preferences so that the ad placements are targeted. This strategy should yield higher return on investment. As a complement to this targeted approach, SPS will employ Facebook, YouTube, Wikipedia, LinkedIn, and Twitter social media sites to reach a broader untargeted audience.

An important part of any digital campaign is direct email with a viral marketing component. Through this complementary strategy, SPS has built an expansive prospect database of potential degree seekers. While only a limited number of these individuals would be interested in or qualify for the program, we will use referral-based marketing techniques that encourage recipients to “share this email with a friend.” Similarly, the website will have a “forward this page to a friend” function. These are proven low-cost peer-to-peer outreach techniques. The marketing group will also contact professional organizations, such as the New York Technology Council (NYTECH) or NY GovTech, for access to mailing lists and listservs that would further build the prospect database.
SPS will continue its efforts to position itself in the public eye through participation in online and in-person events and high-profile academic activities, and will solicit media opportunities. One strategy that SPS has used successfully is producing state-of-the-art professional development webinars that are frequently attended by practicing professionals and academic departments at other colleges who may not have the resources or know-how to offer these events for themselves. In general, this approach has helped to deepen and broaden our exposure as a provider of professionally-oriented degree programs. For the proposed program, we plan to host a monthly speaker series on a host of cutting-edge topics in IS such as cloud computing, informatics, green computing, and social computing systems. The events will benefit our current students—both at SPS and other CUNY campuses—as well as serve as a marketing device for practicing IS workers who want to complete their bachelor’s degree.

To aid in the development of a customized recruitment and marketing strategy, a competitive analysis chart (Figure 12) has been developed to identify B.S. programs in computer and information systems that may be comparable to the proposed SPS program. This analysis will help the SPS marketing team differentiate the proposed program from others in the field.

An initial analysis indicates that there is room in the marketplace for online and hybrid programs. To the extent that there are online programs, there are relatively few, and most of those that do exist are offered by the private, for-profit providers. Those online degrees that are offered by public universities are both rare, and typically at a higher price point than CUNY. Our general track is by design traditional, though we believe the program has distinction via the incorporation of the four context courses. Our MIS track is different because of its concentration on business processes, analytics, and its inclusion of a set of required context courses that dive deeply into the business functions that are most heavily clad with information systems. Based on this, there appears to be an opportunity for SPS to capture a segment of the market that is currently underserved.
Curriculum

The curriculum—featuring two tracks, one titled General IS and the other, Management Information Systems (MIS)—is in line with recommendations set forth by the Joint IS Curriculum Task Force of the Association for Information Systems (AIS) and the Association for Computing Machinery (ACM). The core skills and knowledge domains recommended by the committee follow naturally from a unifying set of seven high-level IS capabilities: the ability to improve organizational processes; exploit and manage technology innovations; understand and address information requirements; design and manage enterprise systems; secure data and infrastructure; control IT risks; and deal with alternative solutions.

As shown in Figure 13, these high-level IS capabilities, in turn, were translated into a comprehensive set of knowledge and skills recommendations for IS practitioners, namely: 1) IS-specific Knowledge and Skills; 2) Foundational Knowledge and Skills; and 3) Domain Fundamentals.

![Figure 13. Guiding Capabilities and Core Skills and Knowledge](Image)

IS-Specific Knowledge and Skills include, but are not limited to, identifying, designing, building, and managing IT/IS-enabled organizational improvements and analyzing trade-offs. Domain Fundamentals refer to the knowledge, traditions, vocabulary, processes, procedures, tools, and culture of a particular field of application. Domain Fundamentals help to mold the I-shaped professional—where the horizontal top of the “I” corresponds the student’s broad set of general IS competencies and the vertical line down the center of the “I” represents the student’s deep skills in one or two specific IS domains. The base of the “I” corresponds to broad general knowledge of a particular industry vertical made possible through the set of context courses. This type of person, was identified as critical by employers in the University’s Jobs for New York’s Future report (p. 16), and by many in the field of human resources more generally. For example, IS professionals who support human resource (HR) operations should be familiar with HR principles, operations, and regulations as well as payroll and other related organizational issues. Lastly, Foundational Knowledge & Skills are the basic abilities that are transferrable across all professional endeavors and include leadership, collaboration, communication, negotiation, problem solving, analytical and critical thinking, creativity, ethical analysis, and quantitative and computational thinking.

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Degree Requirements
The BS in Information Systems requires 120 total earned credits. Figure 14 provides additional detail on major requirements and electives. Note that the course sequencing is relatively flat. Therefore, a student applying to the program, whether new to information systems or entering with a related associate's degree, can complete the sequence of courses in the major within four full-time semesters, excluding summer. The School of Professional Studies provides its students with all of the courses needed to complete the degree; however, students may choose to take context courses at another institution based on personal interest. Courses taken at other institutions are subject to transfer credit policies and approvals.

A minimum grade of a C is required in all courses in the Information Systems major, as well as all prerequisite courses. Where there are prerequisites, a student may not progress to the next course in the sequence without having a C in the prerequisite course(s).

Eligibility Requirements
To qualify for admission to the B.S. in Information Systems, applicants must have:
- At least 24 transferable credits from an accredited college or university
- An overall minimum GPA of 2.5
- A personal statement and portfolio
- An admissions interview may be required at the discretion of the program's academic director

Note: Courses transferring into the major must have been taken within the last five (5) years and must have received a grade of C or better.

Figure 14. Degree Requirements

<table>
<thead>
<tr>
<th>39 General Education Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 12 credits from required core</td>
</tr>
<tr>
<td>• 18 credits from flexible core</td>
</tr>
<tr>
<td>• 9 credits from college option courses at SPS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>51 Credits in the Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 39 credits for the IS required core</td>
</tr>
<tr>
<td>• 12 credits for the track</td>
</tr>
</tbody>
</table>

* 12 Credits in a Context Area
• 12 credits (chosen by the student with approval of the program's academic director.)

* 18 Credits of Free Electives

The 12 credits in the Context Area are referred to as “Context Courses.” Four context courses are required in each track and are a way of organizing major electives to allow students to apply their technology expertise to a specific industry or field. In the MIS track, students select 4 of 5 courses that allow them to dive deeply into the business functions that are most heavily clad with information systems. In the General track, students assemble four courses that are thematically-related in a subject area of their choosing, e.g., social computing or healthcare. Context courses help students develop the interdisciplinary experience referred to in the Program Goals section as the base of our I-skills model and focus their skills on an area that interests them.

Learning Outcomes
The learning outcomes of the proposed program follow. Students will be able to:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;

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• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Manage technology projects through the product (often software and data-related) development lifecycle;
• Assess the impact and strategic value of emerging technologies;
• Apply systems-thinking and design-thinking skills across a broad range of industries and environments; and
• Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Program Goals
The proposed B.S. in Information Systems seeks to create highly skilled, motivated, and self-directed graduates who seek to have a positive impact on the economy and society in general. Our program goals include the following:
• Provide students with a rigorous but flexible curriculum that creates tangible skills for in-demand, high-growth jobs;
• Foster an ethos of innovation, entrepreneurship, and value creation among students that guides their contributions to society, the economy, and the organizations they work with;
• Support student development of “I-shaped skills”—where the horizontal top of the “I” corresponds to the student’s broad set of general IS competencies and the vertical line down the center of the “I” represents the student’s deep skills in one or two specific IS domains. The base of the “I” corresponds to broad general knowledge of a particular industry vertical;
• Prepare students for in-demand industry certifications, recognizing that some professional credentials require some years of experience in the practice;
• Require students to build a portfolio of technology projects that demonstrates the skills and competencies that have developed during the program; and
• Help students build a solid foundation of skills, knowledge, and experiences onto which they will be able to integrate new tools and technologies in this constantly evolving field.

The table below outlines the degree requirements for the B.S. in Information Systems program.
## PROPOSED CURRICULUM B.S. IN INFORMATION SYSTEMS
(all courses are 3 credits unless otherwise indicated)

<table>
<thead>
<tr>
<th>REQUIRED MAJOR COURSES</th>
<th>TRACKS</th>
<th>MAJOR ELECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 200 - Foundations of Information Systems</td>
<td></td>
<td>IS 325 - Computer Forensics</td>
</tr>
<tr>
<td>IS 260 - Networks and Business Data Communication</td>
<td>General Track</td>
<td>IS 374 - Business Process Design and Workflow Analysis</td>
</tr>
<tr>
<td>MATH 215 Introduction to Statistics</td>
<td>IS Elective 1</td>
<td>IS 311 - Introduction to Data Science</td>
</tr>
<tr>
<td>IS 250 - Computer and Network Security</td>
<td>IS Elective 2</td>
<td>MATH 315 - Discrete Mathematics and Linear Algebra</td>
</tr>
<tr>
<td>IS 210 - Software Application Programming 1</td>
<td>IS Elective 3</td>
<td>IS 326 - E-Commerce for Information Systems</td>
</tr>
<tr>
<td>IS 211- Software Application Programming 2</td>
<td>Context Course 1</td>
<td>IS 410 - Principles of Informatics</td>
</tr>
<tr>
<td>IS 360 - Data Acquisition and Management</td>
<td>Context Course 2</td>
<td>Students pick 4 of 5:</td>
</tr>
<tr>
<td>HIM 361 Database Architecture and Programming</td>
<td>Context Course 3</td>
<td>IS 330 - Logistics and Supply Chain Management</td>
</tr>
<tr>
<td>IS 320 - Systems Analysis and Design</td>
<td>Context Course 4</td>
<td>DSAB 245 Universal Design and Assistive Technology</td>
</tr>
<tr>
<td>IS 350 - IS Strategy, Management, and Acquisition</td>
<td></td>
<td>IS 310 - Web Programming and Mobile App Development</td>
</tr>
<tr>
<td>IS 300 - Enterprise Architectures and Applications</td>
<td></td>
<td>IS 379 - IS Special Topics</td>
</tr>
<tr>
<td>PROM 210 Project Management</td>
<td></td>
<td>IS 349 - IS Independent Study (1-3 cr)</td>
</tr>
<tr>
<td>IS 499 - IS Capstone</td>
<td></td>
<td>IS 369 - IS Internship (1-3 cr)</td>
</tr>
</tbody>
</table>

*Students who opt for Managerial Accounting must take BUS 305 as a prerequisite*

### Track Details

**General IS Track:** The general IS track is intended to give students a broad view of information systems and information technology, and allows students to choose a number of major courses based on personal and professional interests. In addition, students must focus their IS skills on a particular domain of application by choosing four thematically-related context courses. The context courses offer students the opportunity to apply technology to problems and issues in a discipline of their choice.

- **General IS Track Course Requirements (12 credits):** IT Infrastructure and Support and nine (9) additional credits of IS electives.
- **Context Course Requirements (12 credits):** Any 12 credits that form a coherent grouping in a specific field or industry.

Figure 15 provides four example combinations of electives and context courses that we believe will be popular with students, but there will likely be other combinations that arise as the job market evolves and the student body diversifies. For example, students interested in healthcare information systems can take four context courses in healthcare and public health and three electives in other topics that are relevant to the field. One of the most successful programs to employ a similar structure that combines information-related and context courses—referred to as cognates in their case—is the University of Indiana’s School of Informatics. At Indiana, cognate combinations...
include communication and culture, psychology, business, public health, journalism, science, and music.\textsuperscript{15} We believe equally rich combinations are possible from courses offered here at SPS.

**MIS Track:** The MIS track focuses on business process and workflow as well as the information systems and technology that support these processes. Students will develop deep skills in process, data, large systems, and data analysis. To provide students with broad business expertise, they must complete courses in four technology-laden business areas.

- **Context Course Requirements (Choose 12 of 15 credits):** Logistics and Supply Chain Management, Accounting Fundamentals, Managerial Accounting, Principles of Marketing, Strategic Human Resource Management.

Note: Students who opt for Managerial Accounting must take Accounting Fundamentals as a prerequisite.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
IS/IT Management & Social Computing & Healthcare Information Systems & Marketing \\
\hline
IT Infrastructure and Support & IT Infrastructure and Support & IT Infrastructure and Support & IT Infrastructure and Support \\
\hline
Computer Forensics & Social Media & Health Information Technology & E-Commerce for Information Systems \\
\hline
Principles of Informatics & Human Computer Interaction & Business Process Design and Workflow Analysis & Introduction to Data Science \\
\hline
Business Process Design and Workflow Analysis & Web Programming and Mobile App Development & Introduction to Data Science & Social Media \\
\hline
\textbf{Context Courses} & \textbf{Context Courses} & \textbf{Context Courses} & \textbf{Context Courses} \\
\hline
Principles of Management & Digital Revolution and the Information Age & Legal and Ethical Aspects of Healthcare & Principles of Marketing \\
\hline
Accounting Fundamentals & Socio-Cultural Approaches to Psychology & Clinical Data Applications and Data Security & Global Business \\
\hline
\hline
Strategic Human Resource Management & Interactive Media & Electronic Health Records & Demography \\
\hline
\end{tabular}
\caption{Potential Course Groupings for the General Track}
\end{table}

**General Education**

The SPS General Education Curriculum is part of CUNY’s new \textit{Pathways General Education Framework}, requirements that undergraduate students across CUNY must satisfy. The three elements of this framework: the Required Common Core, the Flexible Common Core, and the SPS College Option Core, foster knowledge of human culture and the natural world (in science, social science, mathematics, humanities and the arts), intellectual and practical skills (in communication, quantitative reasoning, information literacy, critical thinking and inquiry), and individual and social responsibility (civic engagement, ethical reasoning, and intercultural awareness). Figure 16 lists the SPS Pathways courses.

\textsuperscript{15} \url{http://www.soic.indiana.edu/undergraduate/degrees/bs-informatics/cognates/index.shtml}

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Figure 16. General Education Course Listing

<table>
<thead>
<tr>
<th>1A - Required</th>
<th>6 credits</th>
<th>English Composition</th>
<th>Subject Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101</td>
<td>I-A</td>
<td>College Writing I</td>
<td>English</td>
</tr>
<tr>
<td>ENG 102</td>
<td>I-A</td>
<td>College Writing II</td>
<td>English</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1B - Required</th>
<th>3 credits</th>
<th>Mathematical and Quantitative Reasoning</th>
<th>Subject Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 102</td>
<td>I-B</td>
<td>Mathematics in Contemporary Society</td>
<td>Mathematics</td>
</tr>
<tr>
<td>MATH 215</td>
<td>I-B</td>
<td>Introduction to Statistics</td>
<td>Mathematics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1C - Required</th>
<th>3 credits</th>
<th>Life and Physical Sciences</th>
<th>Subject Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 200</td>
<td>I-C</td>
<td>Human Biology</td>
<td>Biology</td>
</tr>
<tr>
<td>EAS 250</td>
<td>I-C</td>
<td>Oceanography</td>
<td>Environmental Studies</td>
</tr>
<tr>
<td>EAS 201</td>
<td>I-C</td>
<td>Nature of New York</td>
<td>Environmental Studies</td>
</tr>
<tr>
<td>AST 101</td>
<td>I-C</td>
<td>Introductory Astronomy: The Solar System</td>
<td>Astronomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2A - Flexible</th>
<th>3 credits</th>
<th>World Culture and Global Issue</th>
<th>Subject Area</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>PHYS 301</td>
<td>II-E</td>
<td>Space, Time, and Motion - Physical Science</td>
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Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

Course Descriptions- Information Systems Major

Required Courses in the Major
Those courses marked with an asterisk indicate that the description comes directly or in large part from the recommendations of the joint committee sponsored by the Association for Computing Machinery and Association for Information Systems.

*IS 200 - Foundations of Information Systems (3 credits)
Prerequisite: None
Information systems (IS) are an integral part of all business and organizational activities. This course introduces students to contemporary information systems, demonstrates how these systems are used throughout global organizations, and motivates students to think critically about these systems, in order to develop a holistic perspective on technology and its applications. The focus is on the key components of information systems—people, software, hardware, data, and communication technologies—and how these components can be integrated and managed to create competitive advantage. Students gain an understanding of how information is used in organizations and how information systems enable an organization to improve the delivery of its goods or services with regard to quality, speed, or agility. Also provided is an introduction to systems and development concepts, technology acquisition, and new and emerging application software. Students gain hands-on experience with stock and trade technologies, such as spreadsheets and databases. Several case studies are analyzed to learn how IS systems are used in various domains.

IS 260 - Networks and Business Data Communication (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
Networks allow for the exchange of data between individual computing devices. Students are introduced to the underlying technology upon which information systems are built and become familiar with the fundamental concepts of networking and telecommunications and how these technologies can be used to enhance business performance. Particular emphasis is placed on convergence technologies, such as multimedia communications and Voice-Over-Internet Protocol, and the role of networks in the facilitation of these real-time applications. The technologies behind wireless and broadband networks are discussed. Additional topics include voice and data network design, monitoring tools and various network features (e.g., quality of service). Case studies are used to expose students to real-world scenarios.
MATH 215 – Introduction to Statistics (3 credits)
Prerequisite: None
This course will introduce the basic principles of statistics and probability, with an emphasis on understanding the underlying concepts, real-world applications, and the underlying story that the numbers tell. Students will be expected to use Microsoft Excel’s statistical functions to implement analyze data. Broadly speaking, this course will provide an introduction to probability, descriptive statistics, hypothesis testing, and inferential statistics.

IS 250 - Computer and Network Security (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
In an increasingly networked world, computer security, which consists of the practices and policies intended to prevent and monitor unauthorized access, misuse, modification, or denial of a computer or network, is more critical than ever. This introductory course provides a general overview of various computer and network security topics and concepts, including standards and protocols, cryptography, network- and infrastructure-level security, authentication and remote access considerations, securing wireless networks, identifying tools for security management and threat abatement, the role of change management, user security awareness, business continuity planning, privacy rights, and security, legal issues and challenges, and computer forensics. Students explore fundamental concepts associated with security planning and design, security risk analysis and mitigation, and security operational considerations. Particular emphasis is placed on understanding methods and techniques for risk assessment and risk mitigation.

IS 210 - Software Application Programming 1 (3 credits)
Prerequisite: None
The ability to write software programs is a critical skill in the IS field. Students are introduced to the fundamental concepts and terms of computer science that are necessary to program software, with an emphasis on problem-solving and algorithm development. Concepts such as data types, control structures, modular organization, and object-oriented programming, using practical examples that highlight the design, implementation, and testing phases of programming, are explained. Important topics such as program documentation, input/output considerations, and information assurance are stressed. Students build several well-documented and well-designed integratable code modules to present in class.

IS 211 - Software Application Programming 2 (3 credits)
Prerequisite: IS 210
This second course in programming further develops the skills gained in Software Application Programming 1 by incorporating object-oriented programming calls into functional and procedural code. Design is discussed in depth, and students are introduced to Graphical User Interface (GUI) applications and arrays. Additional programming topics include file input/output, inheritance, polymorphism, text processing, and wrapper classes. For the final project, students will create and present a working and deployed application that adheres to coding best practices and includes complete documentation.

IS 360 – Data Acquisition and Management (3 credits)
Prerequisite: None
In a world where more and more data of increasing complexity and scope is being collected by organizations of all types, the ability to organize and manage this data is the first step toward extracting value from it. Students are introduced to key topics and techniques associated with database management, including the difference between data and information from a data-centric point of view; managing data with and without databases; computer and data security; data cleansing, fusing, and processing techniques; combining data from different sources/integration; storage techniques, including very large data sets; and database privacy and security issues. Hands-on experience is critical throughout. Students are required to build several databases by importing, cleaning, manipulating, storing, and securing complex datasets that contain multiple types of data. An emphasis on applying critical thinking and creativity to the design of efficient and effective management solutions is necessary.
HIM 361 - Database Architecture and Programming (3 credits)
Prerequisite: HIM 360 or IS 360
This course discusses the design, development, deployment, and evaluation of database systems. In addition, students learn conceptual and relational data modeling, and implementation languages such as Structured Query Language (SQL). Additional topics include data integrity, relational normalization theory, security, privacy, and concurrency control.

*IS 320 - Systems Analysis and Design (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
The science of systems analysis and design requires IS professional to map and exploit the processes, methods, techniques, and tools that organizations use to conduct business. This course covers a systematic methodology for analyzing a business problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the business need, articulating business requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements—in particular, in-house development, development from third-party providers, or purchased commercial off-the-shelf (COTS) packages—and specifying the requirements for the information systems solution. Students gain hands-on experience with systems analysis and design methodologies and tools by analyzing the functionality and design of existing systems with regard to a specific business need, and developing requirements and a project plan for a new system.

*IS 350 - IS Strategy, Management, and Acquisition (3 credits)
Prerequisite: IS 211, HIM 361, IS 260, IS 250, IS 320, IS 300
One distinction between a good company and a great company is how well its information systems (IS) enable organizational capabilities. From a senior management perspective, we explore the acquisition, development, and implementation of plans and policies to achieve efficient and effective information systems. Students learn the fundamental concepts associated with high-level IS infrastructure and the systems that support the operational, administrative, and strategic needs of an organization. Through the use of case studies, students begin to develop an intellectual framework to critically assess IS infrastructures and emerging technologies, and how these enabling technologies might affect organizational strategy. The ideas developed and cultivated are intended to provide an enduring perspective that can help students make sense of an increasingly globalized and technology-intensive business environment.

*IS 300 - Enterprise Architectures and Applications (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
Enterprise architecture exists at the intersection of technology and business strategy and consists of the vision, principles, and standards that guide the purchase and deployment of technology within an enterprise. Students explore the design, selection, implementation, and management of enterprise-wide IT solutions. Frameworks and strategies for infrastructure management, system administration, data/information architecture, content management, distributed computing, middleware, legacy system integration, system consolidation, software selection, IT investment analysis, and total cost of ownership calculation are discussed. Students examine multiple types of IS functions, such as messaging and collaboration systems, business intelligence and analytics systems, customer relationship management (CRM) systems, enterprise resource planning (ERP) systems, and content management (CM) systems. Cloud computing, a widely used architecture to deploy enterprise applications as a service over the Internet, is also included. Case studies are employed to expose students to real-world scenarios.

PROM 210 - Project Management (3 credits)
Prerequisite: CIS 101 or IS 200
Students learn to plan, organize, lead, and evaluate projects—large and small—to ensure that requirements are delivered on time and within budget. Topics include the essentials of initiating a project, defining requirements, scheduling tasks, managing scope, working in cross-functional teams, communicating effectively, resolving conflict, and closing a project. While budget development is beyond the scope of this course, students will be expected to
Understand simple project budgets. In addition to traditional task lists and timelines, students must generate project charters, change notices, progress reports, and project closing documents.

**IS 499 – IS Capstone (3 credits)**
*Prerequisite: Senior status and permission of the program’s academic director*
Synthesizing complex information and applying that information in the context of a real-world scenario is a high-level ability that employers increasingly demand. In this course, students integrate the skills developed in previous classes into a comprehensive body of knowledge to provide tangible evidence of their competence. The Capstone has two components: 1.) submission of a portfolio that consists of work completed during the program presented in a holistic manner, and 2.) development of a final IS project with emphasis on one or two areas of the profession, and grounded in a particular real-world context. For the project, a problem is identified, then analyzed, designed, and implemented with a professional-quality information system that contributes to a solution. In addition, students must be able to articulate the value of and practical challenges associated with the IS solution. Students may work either independently or in a group (no larger than three, with the permission of the instructor), selecting a subject that is in line with the students’ career aspirations, and ideally builds on ideas and work that began in other classes. The work developed in the Capstone is presented to faculty and students, and the larger information systems community.

**Track and Elective Courses in the Major**
Below are descriptions for information systems elective courses. Existing courses are marked with an asterisk.

**BUS 305 – Accounting Fundamentals (3 credits)**
*Prerequisite: Any 200-level Math Course*
This course provides the fundamentals for the identification, measurement, and reporting of financial and economic events of enterprises and businesses. The accounting concepts and standards studied will be used in conjunction with accounting software, and focuses on such topics as assets, liabilities, the accounting cycle, inventory, internal controls, accounting receivables, cash flow statements, financial statements and corporate accounting.

**IS 374 - Business Process Design and Workflow Analysis (3 credits)**
*Prerequisite: IS 200 (or BUS 325 and CIS 101)*
The analysis and design of business processes is critical to improving quality and efficiencies. Moreover, identifying process and workflow are the first steps to sourcing or building software systems. This course provides an introduction to business process design and workflow analysis, as both a management discipline and as a set of enabling technologies. Students learn the key concepts, terms, methodologies, techniques, and technologies in business process design. Hands-on experience with process modeling tools and technologies used to support workflow analysis is provided. Students learn the practices and technologies that are making "process thinking" a new approach to solving business problems and continuously improving organizational competitiveness and performance. A semester-long project using open source process design tools is developed and presented at the end of the course. Case studies are used to expose students to real-world scenarios. (e.g., McDonald Brothers case study).

**IS 325 - Computer Forensics (3 credits)**
*Prerequisites: IS 205, IS 360, IS 260, IS 250*
Computer and digital forensics is the science of recovering and investigating digital evidence from technology. In this course, students build on a broad technical knowledge of computer systems to study phenomena such as computer crimes, hacking, producing evidence, and fraud investigation. Topics include Windows Registry Analysis, recovering deleted files, and Solid State Drives (SSD) operations versus Hard Disk Drive (HDD) functions. The limitations of forensic analysis are also covered. Upon completion of the course, students have a basic knowledge of computer forensics concepts, chain of custody/evidence handling, and computer forensic tools. Case studies are used to expose students to real-world scenarios.
MATH 315 - Discrete Mathematics and Linear Algebra  (3 credits)
Prerequisite: MATH 215 or BUS 310
Computational mathematics—including discrete math and linear algebra—provide the foundation for modeling real-world phenomena such as consumer behavior, web trends, traffic, crime, and clinical success rates. Students learn the basic mathematics that is needed for programming and entry-level data science. Throughout the course, students have a chance to apply mathematical theory to real-world data sets and gain an understanding of the relationship between discrete mathematics and IS. Topics include logic, set theory, functions and sequences, algorithms and integers, counting, graphs, definitions, isomorphism, graph algorithms, trees, basic probability, matrix algebra, systems of linear equations, eigenvalues, eigenvectors, recurrence relations, and linear programming.

IS 326 - E-Commerce for Information Systems (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
The Internet and an assortment of information technologies have led to the development and continuing evolution of electronic commerce (e-commerce), which has revolutionized the way people, organizations, and governments interact with each other. This course approaches the study of e-commerce strategies, operations, workflows, and technologies from a value-creating perspective. Through lectures, case studies, and hands-on projects, students develop an understanding of the special characteristics that identify the similarities and differences between e-commerce and other forms of commerce, such as hybridized models. Students develop a conceptual foundation to help them identify and evaluate new trends, innovative business opportunities, and the potential impacts to various industries, as well as the fundamental technological structures required for implementation. In addition, students learn to assess the potential limitations, issues, and risks associated with various e-commerce initiatives. For IS majors, students must produce an e-commerce solution, either using off-the-shelf tools or by coding a complete solution.

IS 380 - Geographic Information Systems (3 credits)
Prerequisite: IS 200 (or BUS 325 and CIS 101)
Modern Geographic Information Systems (GIS) have found their way into many aspects of everyday life, nested as they are on smartphones and PDAs and installed in automobiles. GIS applications are broad, from operations and logistics to marketing and sales. In our personal lives, GIS is. These technologies allow users, from individuals to organizations, to visualize, question, analyze, and interpret the world and its underlying geographical processes. Students learn about the hardware, software, and processes incorporated into GIS. Various methods for interpreting and analyzing spatial data, including cartography, remote sensing, spatial statistics, and survey research are included. Case studies are used to expose students to real-world scenarios. Students also gain hands-on experience using open-source GIS platforms.

IS 339 - Health Information Technology
Prerequisite: IS 200 (or BUS 325 and CIS 101)
Information systems hold great promise for improving healthcare quality and lowering skyrocketing healthcare costs. From applying best practices in information systems to challenges in health information technology (HIT), students are prepared to enter the health technology field. Topics include an introduction to HIT standards, health-related data structures, and software applications and enterprise architecture in healthcare and public health organizations. The workflow and processes embedded in the healthcare industry are discussed in depth. Patient privacy and security are a critical part of this course. Considerable time is spent exposing students to emerging trends in healthcare technologies, such as scanning and imaging devices that produce data. Case studies are included to ensure that students have a broad exposure to technology in healthcare. Students gain hands-on experience with open source HIT systems.
*IS 370 - Human-Computer Interaction (3 credits)*

**Prerequisite:** IS 211
User-friendly design is a key driver of the rapid adoption and continued use of software systems. Human-Computer Interaction (HCI) is an interdisciplinary field that studies the design, evaluation, and implementation of computer user interfaces (UX). HCI integrates cognitive psychology, design, and computer science among other disciplines to better understand the factors that influence technology’s usability and acceptance. This course examines methods (e.g., design thinking), techniques (e.g., user-centered design), and tools used in the design and evaluation of information systems, as well as the human performance that results from good design. Societal impacts of HCI, such as accessibility, are also discussed. Case studies are used to expose students to real-world scenarios. Students produce and present a semester-long project.

**IS 311 - Introduction to Data Science (3 credits)**

**Prerequisite:** IS 200 (or BUS 325 and CIS 101), MATH 315, IS 211, IS 360
The ability to understand, analyze, and interpret large and disparate data sets is increasingly important for gaining competitive advantage in the marketplace, and improving social conditions. This course uses the statistical and mathematical techniques that form the basis of descriptive and predictive analytics to extract qualitative insights from a variety of data types (e.g., customer preferences, purchasing and pricing, social network interactions, text, images, and mobile and ubiquitous outputs). Using existing programming and data management skills students apply them to the areas of data acquisition and cleaning, data exploration and visualization, mathematical model development, and graphical report creation. Areas of application can include social analytics, search engine algorithms, recommender systems, market analysis and demand estimation, customer segmentation and product pricing, healthcare, and transportation. In addition, students use current statistical analysis tools such as R. Case studies are used throughout the course.

**IS 205 - IT Infrastructure and Support (3 credits)**

**Prerequisite:** None
Computer system downtime raises the costs of doing business and lowers productivity. For technology vendors, good customer support is a driver of sales. This introductory course builds on the foundational skills needed by computer desktop support personnel. A particular emphasis is placed on helping the student to build the technical skills required to take the CompTIA A+ certification exams, which include the ability to install, build, upgrade, repair, configure, optimize, and maintain computer and mobile systems. The course also prepares students to support popular software applications. Designed for individuals with minimal technical understanding of computer hardware, software, networks, processes, and portable devices, students learn these essentials for helpdesk management. Simulations are used to provide hands-on experience.

**IS 410 – Principles of Informatics**

**Prerequisite:** IS 200 (or BUS 325 and CIS 101)
Informatics places the study of information systems into a human context. Information systems professionals need to understand human behavior as it shapes, and is shaped by, a confluence of information made available through technology. Key ethical and legal issues that arise in computer-driven environments, including the ownership, use, and sharing of electronic information; protection of the rights of information producers, providers, and users; protection of minors; protection of privacy; harassment; ADA compliance; and the role of government are discussed. Additionally, there is an examination of human attitudes toward, and usage of hardware and software in, the global environment. Students consider specific applications of the course content to their specialized fields of study (e.g., business information systems, health information systems, educational technologies, etc.).

**IS 332 – Social Media (3 credits)**

**Prerequisite:** IS 200 (or BUS 325 and CIS 101)
Social media, and more generally, social computing, bring people together in virtual spaces to facilitate various kinds of technology-mediated social participation, such as connecting, discussing, artifact and information sharing, and...
recommending. Understanding the applications and platforms that are available today—such as social networking, virtual communities, artifact and knowledge-sharing sites, mobile and location-based technologies/services, video, blogs, wikis, etc.—is critical for recognizing emergent trends in this rapidly changing space. Topics examined include the impact of social media and modern communication tools on areas such as commerce, entertainment, networking and relationship building/maintenance, community action, sustainability, national security, emergency management, healthcare, citizen science, and education. Students discuss phenomena such as crowdsourcing, recommender systems, and collaboratories. To better understand the social aspects of online interaction, core behavioral concepts, including group and community formation and identification, social network theory, individual motivations, and trust, in addition to basic media theories such as social presence and media richness are discussed. Designed for IS majors, everyone must create an online community, using either off-the-shelf tools or by creating an original one.

**DSAB 245 – Universal Design and Assistive Technology (3 credits)**

*Prerequisite: None*

This course examines the key issues framing access, opportunity, and physical inclusion for children and adults with disabilities, including veterans. The course will include an exploration of principles of universal design, reasonable accommodations in housing, education and employment, and the process of determining accommodation needs, the role of technology in enhancing access to the built environment and education, and the challenges of providing accommodation for hidden disabilities.

**IS 310 - Web Programming and Mobile App Development (3 credits)**

*Prerequisite: IS 211*

One of today’s fastest growing software markets is the mobile web, where portable devices interface with web applications to transact business, connect friends, and control machines. This course is designed to explore the core principles and techniques essential to building both websites and mobile applications. Interface design techniques that enhance existing websites for mobile viewing, how to incorporate markup and style sheet capabilities, and automating sites with scripting languages are covered. Specific platforms and programming techniques change over time, but the expectation is that students build working and deployable systems that may be displayed on contemporary web and mobile platforms. Security, performance, scalability, and maintainability are also discussed.

**IS 379 - IS Special Topics (1-3 credits)**

*Prerequisite: Approval of the program’s academic director*

This course provides the program to offer boutique short-term courses on emerging phenomena and technologies in this fast-moving industry. The expectation is that this is an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

**IS 349 – IS Independent Study (1-3 credits)**

*Prerequisite: Approval of the program’s academic director*

Students have the flexibility to learn more about a topic of interest outside of the formal course setting. A subject is chosen in consultation with a faculty advisor, who acts as the student’s supervisor, and with the permission of the academic director. Requirements include the submission of a course contract describing the course of study and its specific learning objectives. Course credit is determined by the instructor, with the approval of the academic director.

**IS 369 – IS Internship (3 credits)**

*Prerequisite: Approval of the program’s academic director*

This is an off-campus internship supervised by a staff person at the internship site, and overseen by a faculty advisor. The internship site must be approved by the program’s academic director, and the overall duration of the work must be no less than 150 hours of student work. At the start of the internship, the student and faculty advisor jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students are required to submit weekly reflections. When the internship ends, students submit a final paper that illustrates the knowledge gained from the experience.

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Context Courses
Below are descriptions for selected non-IS courses that must be used to fulfill the context course requirement for the MIS track. We do not list potential context courses for the general IS track because students may choose from any courses at the School of Professional Studies or elsewhere. Courses taken at other institutions are subject to transfer credit policies and approvals.

IS 330 – Logistics and Supply Chain Management (3 credits)
Prerequisite: None
Logistics—processes within a single firm or organization—and supply chain management (SCM)—processes and exchanges across multiple organizations are essential elements of any lean business. The course discusses the efficient and effective planning and control of product/service design and generation; raw and finished goods inventories; layout and location of offices, warehouses, and factories; distribution channels and systems; labor standards and scheduling; intermediate and long-term decision making; and fulfillment of critical customer expectations. Topics include logistics/SCM strategy and tactics; process selection; design and analysis; location selection; scheduling and sequencing; lean operating systems; quality control; facility and work design; performance measurement; simulation, queuing, and supply chain models; project, inventory, and capacity planning; and related professional software packages.

BUS 306 – Managerial Accounting (3 credits)
Prerequisite: BUS 305
Organizations use accounting information for planning and controlling operations. Students develop a framework for measuring managerial performance through an analytical treatment of cost behavior under dynamic conditions by employing tools such as job and process costing and forecasting, operational budgeting and forecasting, activity-based costing, variable costing, cost estimation, cost-volume-profit analysis, balance sheets, cash flow, standard costing, differential costing, capital planning and projections, and variance analysis.

BUS 315 – Principles of Marketing (3 credits)
Prerequisite: None
This survey course explores the various environments in which contemporary marketers operate, including the online digital world of e-marketing, and the problems and practices related to the planning of marketing strategies in the exchange process. Students learn how successful marketers focus on domestic and global market opportunities while being sensitive to cultural differences, such as ethical and socially responsible decision-making, while also focusing on issues of quality and technological change.

BUS 321 - Strategic Human Resource Management (3 credits)
Prerequisite: None
Human Resources Management (HRM) bridges policies that impact human behavior with those that drive business strategy to make the most of an organization’s human capital. HRM includes the functions of recruitment and selection, employment law, training, career development, labor relations, equal employment opportunity (EEO), labor, affirmative action, performance management, health and safety, compensation, and benefits management. Through exposure to a broad range of topics, Students are prepared to deal with a variety of issues that may be encountered in careers such as an HR manager or team leader. An overview of HR Information Systems is included.

Mapping the Curriculum to Relevant Jobs
Building on the model provided by the joint committee of the Association for Computing Machinery (ACM) and the Association for Information Systems (AIS), Figure 18 provides a roadmap that identifies which courses provide critical skills needed for tech jobs that would be the most logical pathways for graduates of the proposed program. Courses marked with a “1” indicate coverage of “critical” material and others marked with a “2” indicate exposure to “relevant” knowledge and skillsets. Any cells marked with an asterisk are for courses that are not required for a particular career path. Job descriptions and required qualifications were gathered from O*Net OnLine16 as well as from ACM and AIS.

16 http://www.onetonline.org
## Mapping the Curriculum to Jobs

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<tr>
<th>Course</th>
<th>Software Application Developer</th>
<th>Computer Systems Analyst</th>
<th>Database Administrator</th>
<th>Computer &amp; IS Managers</th>
<th>Network Administrator</th>
<th>Web Developer</th>
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Articulation

Articulation agreements have been finalized with the A.A.S. in Computer Information Systems at Queensborough Community College and the A.S.S. degrees in Computer Information Systems and Computer Network Technology at the Borough of Manhattan Community College.

Academic Policies

The proposed program will implement procedures intended to ensure that students are fully responsible for all assignments and that the highest standards of academic integrity are maintained. Such policies and procedures are a necessary component of all academic programs, regardless of the form of course delivery.

The program will address the issue of academic integrity, which includes, but is not restricted to plagiarism, through several mechanisms:

- **Clearly worded policy statement:** The program will introduce entering students to the policies regarding academic integrity during their initial orientation and then will have these policy statements included in the syllabus of every course. The policy statement will include a description of the kinds of behaviors that violate academic integrity standards, the procedures that will be followed when violations are thought to have occurred, and consequences for students should violations be confirmed. In general, all students are bound by the academic policies established by the School of Professional Studies and published in the School’s website, academic handbook, and annual bulletin.

- **Detailed guidelines for students on how to avoid violations of academic integrity policies:** In some cases, students include unattributed sections of text, graphics and other non-original elements in assignments without realizing that this is not allowed. To avoid such incidents, the program will develop and disseminate a detailed guide for students that includes, among other things, online sites where students can submit drafts of assignments before they are given to the instructor and where sections that are copied from other sources are identified.

- **Online course identity verification:** All students in the online instruction offered by SPS must log in through an LDAP (Lightweight Directory Access Protocol) that uses IDs and passwords to invoke an authentication triangulated against name, date of birth, and social security number. This secure login is a student’s only means of access to Blackboard, the course management system. Every action within a course site registers on Blackboard’s extensive tracking features, which track each user in terms of time and duration of any action and part of the site involved, even if there is no posting by the student.

- **Characteristics of online courses at SPS:** We know from the tracking features in Blackboard that students in online courses average 9-12 hours a week in the site of each undergraduate course they take. Much of the time in the site is also time on-task, not just reviewing course content, but contributing to discussions, blogs, and wikis. Contrary to the impression that online courses are essentially correspondence courses, interaction among the students and between student and instructor is actually significantly higher (according to a CASE study of CUNY online courses, about three times higher) than in classroom-based courses. Students establish what, in the research literature, is called “social presence” -- a composite impression of their interests, abilities, and “voice” created from their many contributions and transactions. Thus, since every student makes his or her presence known by contributing in writing to the site, all online courses are writing-intensive. Because instructors and students see many samples of individual student’s work weekly, it is considerably harder to cheat in an online course than in a conventional course, and considerably easier to spot any violations of academic integrity. The smaller class sizes – no more than 25 students per class – enhance this effect.

- **Teaching practices and training:** Instructors will be introduced to the program policies with regard to academic integrity when they begin teaching in the program and will be expected to disseminate reminders to their students each semester. Additionally, instructors will be given guidelines on specific ways to structure assignments and tests so that the possibilities for plagiarism and cheating are minimized. For example, with...
project-based assignments, faculty will require pre-project proposals and other incremental submissions that establish a narrative pattern which, when changed midstream, makes cheating obvious. The extended submission stream makes it difficult for anyone to serve as a “stand in.” Public course discussion forums provide another device that establishes each student’s narrative voice which is hard for someone else to reproduce. Instructors will routinely use the Safe Assign feature of the Blackboard course management system that compares students’ written work with a very large database of previously published work and highlights sections that have been copied without appropriate attribution. Faculty will be advised to replace traditional quizzes and exams that test for facts and information acquisition with project-based work, which assesses practice-based competencies and has longer time-on-task requirements. When faculty do give exams, the questions will be open-ended, so that students must synthesize the material from previous learning modules. This technique limits the chances of someone else doing the students’ work. Further, test questions will be automatically randomized and time-delimited to prevent cheating.

We are confident that these procedures, taken together, will ensure a program culture in which academic integrity is widely understood and valued and where violations are minimized and relatively easy to detect. We will continue to monitor the professional literature in this area, so that our efforts are consistent with current best practice.

Cost Assessment

Budget Tables

Budget information is contained in the Appendices as follows:
- Table 5: New Resources
- Table 6: Projected Revenue
- Table 7: Five-Year Financial Projections Worksheet
- Table 8: Five-Year Revenue Projections Worksheet

Faculty

A group of faculty (see Tables 2, 3, and 4 in the appendices) will develop the curriculum based on guidelines recommended by the Association for Computer Machinery and the Association for Information Systems. In addition, suggestions from local employers, who hire the bulk of CUNY graduates, will be integrated where possible. Their enthusiasm and commitment will ensure the success of the program and its students. As more detailed work on the proposal continues, additional faculty will be included in our planning.

Adjunct instructors for the program will include University faculty and researchers, and may include subject matter experts available in New York City and beyond. All faculty teaching in the program will have doctoral degrees in their respective fields, or they will have an appropriate professional degree and related experience. In addition, all faculty who teach will be firmly committed to an effective pedagogy and fully prepared to teach online or hybrid courses.

Consortial Faculty and Industry Advisers

SPS adheres to a Governance Plan approved by the CUNY Board of Trustees, and follows a consortial faculty model. Consortial faculty at SPS are typically full-time faculty within CUNY who are appointed to SPS for six hours of reassigned time per academic year for service, with the expectation of at least one course taught annually for overload compensation. The service of consortial faculty is seen as an executive function: meeting as a group with the academic director several times each term, the consortial faculty would be responsible for curricular oversight,
participation in personnel decisions, academic review and appeals, committee service, etc. The service commitment would include two faculty observations and mentoring for each consortial faculty member each semester. In some programs, the consortial faculty would be supplemented by industry advisors serving as academic community leaders, who would receive three hours of reassigned time per academic year. Such leaders would be responsible for ensuring that the curriculum meets industry needs, working with students as they map out their career path, working with other faculty to infuse practical applications into coursework, organizing all mentoring, and arranging observations as well as meetings or communications within a team of faculty teaching related courses. With some flexibility for growth and contraction, and dependent on particular program circumstances, 10 sections of related courses would suffice to justify the assignment of such a leader, whose key task would be to build a sense of community, of shared enterprise and collaboration, among the instructors in a defined academic area. It is anticipated that initially the IS program would hire one academic community leader to complement its first consortial faculty member.

Support Services and Resources

The new program will rely on the existing infrastructures for student intake, student services, and instructional needs. Likewise, SPS will continue to leverage existing administrative and technological infrastructures from within the University to support admissions and financial aid. The student, faculty, and administrative services currently offered by SPS can readily be extended to this new bachelor’s program.

SPS currently has advisors who are trained to work with undergraduate and graduate students, and all services, including the registrar, bursar, and financial aid offices — available online or in person — likewise have the capacity to handle the additional students.

1. Academic Advisement: Students are assigned an academic advisor who stays with the student through graduation to maintain the consistent personal connection so important in online education programs. In addition, students meet with each other and with faculty throughout the semester online; this ongoing contact ensures that there are sufficient informal opportunities to discuss academic issues.

2. Library: Library support will be robust. The collection of IS journals, trade magazines, and other high-tech sources is more than sufficient for the need of an undergraduate IS program. The School of Professional Studies partners with Baruch College’s Newman Library to deliver high quality access to online and in-person services. Through this partnership, the Newman Library provides SPS students and faculty with access to several hundred online databases and information resources in print and electronic formats. Users have access seven days a week to the library’s on-site computing facilities, as well as remote access from off-campus locations to thousands of full-text journals, newspapers, and books. A Web-based reference service, in which librarians answer questions via “text chat,” is available 24 hours a day, seven days a week. Beyond the Newman Library, SPS students also have access to other libraries across the CUNY system.

3. Writing Support and Tutoring: Online writing and tutoring support in a wide array of subject areas is provided to SPS students by a consortium of diverse institutions. Students can choose to speak with a tutor through a live interactive Web conference, on the telephone, using text messaging, or via e-mail. Students may ask questions about specific subject areas, or, if they need assistance writing a paper, they may submit a written draft for a tutor to review. Tutors will not edit, correct, proofread, or rewrite papers. They will, however, coach students to consider the clarity of their work, point out inconsistencies in arguments, and identify problems with grammar. Likewise, if students need additional support in math or statistics, they are encouraged to work with a tutor. Should students need help with research projects, they can choose to work with Research and Information Literacy tutors, all of whom are doctoral students at CUNY.
4. **Career Services**: The School of Professional Studies’ Career Services Office helps both current students and alumni seek full-time employment, think through a career change, or explore internship opportunities. Additionally, the School is implementing programs to address on-the-job issues, professional development, and career assessment needs. The Career Services Office incorporates a mix of the latest technology and digital communications to offer a host of online tools and workshops that meet the diverse needs of this unique community. In addition to traditional methods of placement counseling, the Optimal Resume online career management program is available. This program provides extensive support for resumes, cover letters, interview practice, portfolios, etc., and places career resources within reach of any students or alumni seeking career assistance.

Further information about student services is available through the website, FAQ's, Virtual Campus, and program brochure. In addition, anyone seeking information about programs and services at the School of Professional Studies can contact an inquiry specialist or an advisor at 212-652-CUNY (2869) or information@sps.cuny.edu.

**Technology**

**Computing Infrastructure for Teaching IS Courses**
Computing infrastructure for teaching consists of hardware, software, technical support, and professional support. The proposed program curriculum will require appropriate computing infrastructure to provide students with hands-on experience in multiple aspects of computer and information systems. These requirements will be developed as part of the full proposal once the faculty creates detailed syllabi. As a goal, the faculty will design curriculum around open-source applications. Other packages can be obtained from large vendors as part of educational grants, such as IBM’s Academic Skills Cloud, which makes available many relevant technology tools. In addition, the program will use simulations and remote support environments where possible. While the expectation is that students will become adept at installing, managing, and supporting these applications for themselves, some technical support will be necessary at various stages of the program.

**Other Technology and Support**
The core educational technology infrastructure is CUNY’s enterprise Blackboard course management system. Blackboard supports the faculty’s requirement to share documents, have group discussions, assign collaborative projects, and respond to individual student questions or assignments.

Other support services include online admissions and advisement, registration, and grade reporting, which are all available online or in person. Web-based tools like Live Person and GoToAssist, used by well-trained administrative staff, complement this support structure. Overall, these resources enable students and faculty to focus on teaching and learning activities while providing an extracurricular dimension of support and interaction. The SPS Help Desk is available to help students and faculty with any technology issues. More than simply addressing problems as they arise, the Help Desk takes a proactive stance towards support by providing constituents with how-to guides and videos, live training and regular updates on technology changes.

**Evaluation**

**Governance and Oversight**
The program will follow the governance plan of SPS. Ongoing oversight of the program will be led by the Dean of SPS, the Associate Deans, the Academic Director, and appointed faculty for the program.

1. **Program Outcomes**: All degree programs are required to identify programmatic outcomes, which include student learning competencies. Consistent with the requirements of regional accreditation agencies, the focus of
evaluation will be on objective measures of outcomes. Like other SPS online programs, the program will conduct academic review sessions twice each year. These are sessions in which program leaders, along with academic support staff, review students’ records and make decisions with regard to both individual students’ status and program policy and practice. In addition to measures of academic achievement, data on retention, progress toward degree, and degree completion will be tracked as key indices of program success.

For students, e-portfolios will be used to maintain records of their best work in relation to each of the program’s primary learning goals. These will serve as the basis for course and career planning and advisement. Nearly all of the core courses employ project-based learning, which will provide content for a student’s portfolio. The Capstone and complete e-portfolio will be used for summative assessment of each student’s overall knowledge and abilities before graduation.

2. **Course Outcomes:** Learning outcomes are defined for each course and provide key reference points for course design and assessment. Faculty will provide students with written reports before mid-term, spelling out those areas where students can improve their performance. Courses will use a combination of evaluative devices, both high- and low-stakes, to provide frequent measures of student learning progress within courses.

3. **Instructor Performance:** Consistent with the practice of other CUNY SPS online programs, the program will track instructor effectiveness closely. Each instructor’s readiness for online teaching will be assessed well before the beginning of each term, and necessary training will be required, both in the areas of pedagogy and use of technology tools. Each new instructor will be assigned an experienced online instructor as a mentor, with the mentor providing close oversight and guidance. In addition to reports from the mentors, each instructor will have his or her course site and teaching practices formally evaluated each term. Additionally, the extent to which students are successful in mastering course-specific objectives will be an important measure of the accomplishments of each instructor.
### Learning Outcomes by Course

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>Web Programming and Mobile App Development</td>
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### Learning Outcomes

1. Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems.
2. Build secure, reliable, and accurate software systems using programming and database skills.
3. Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders.
4. Manage technology projects through the product (often software and data-related) development lifecycle.
5. Assess the impact and strategic value of emerging technologies.
6. Apply systems-thinking and design-thinking skills across a broad range of industries and environments.
7. Solve problems, think critically, communicate effectively both verbally and in writing, and make ethical decisions.
Program: B.S. in Information Systems
Course Name and Number: IS 200 - Foundations of Information Systems
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisite: None

Course Description:
Information systems (IS) are an integral part of all business and organizational activities. This course introduces students to contemporary information systems, demonstrates how these systems are used throughout global organizations, and motivates students to think critically about these systems, in order to develop a holistic perspective on technology and its applications. The focus is on the key components of information systems—people, software, hardware, data, and communication technologies—and how these components can be integrated and managed to create competitive advantage. Students gain an understanding of how information is used in organizations and how information systems enable an organization to improve the delivery of its goods or services with regard to quality, speed, or agility. Also provided is an introduction to systems and development concepts, technology acquisition, and new and emerging application software. Students gain hands-on experience with stock and trade technologies, such as spreadsheets and databases. Several case studies are analyzed to learn how IS systems are used in various domains.

Student Learning Outcomes:
At the end of this course, students are able to:
- Identify, discuss, and apply basic information systems concepts as applied to business operations and management on a local and global level;
- Identify, diagram, and evaluate the major components of a computer system, including hardware, software, operating systems, and operating environments, as they apply to information systems;
- Identify and propose computer-based information systems from a management perspective;
- Explain the interdependence and functionality of the hardware and software components of information systems and work with the Management Information Systems staff to make technical decisions;
- Compare and contrast the value of emerging technologies;
- Design and develop basic MIS applications, such as spreadsheet and simple database systems;
- Articulate and justify the need for data security and system security;
- Identify and outline privacy and ethical issues raised by the global use of information systems; and
- Assess and explain how to utilize large-scale computer applications systems to assist with business management and operations.

Students are required to:
- Articulate their own perspective on technology by assessing its positive and negative impacts in a variety of contexts;
- Develop spreadsheets and basic databases to be used in making business decisions;
- Analyze and interpolate business case studies in information systems;
- Design and develop flow models and information systems mockups employing a number of different technologies;
- Create a privacy and security policy for a large organization website; and
- Collaborate with other class members in a team project related to information systems.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Manage technology projects through the product (often software and data-related) development lifecycle;
• Assess the impact and strategic value of emerging technologies;
• Apply systems thinking and design thinking skills across a broad range of industries and environments; and
• Solve problems, think critically, communicate effectively both verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

**Grading Scale**

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IS majors must earn a grade of C or better in all IS courses to meet the program's degree requirements.

**Assignments as a Percentage of Course Grade:**

- Midterm 20%
- Final Exam 20%
- Team Project 30%
- Database Assignment 10%
- Excel Assignment 10%
- Case studies 10%

**Required Text(s):**


**Course Outline:**

Week 1 Information Systems in the Global Market
Week 2 Strategies for Achieving a Competitive Advantage with Information Systems
Week 3 Business Intelligence - Databases and Information Management
Week 4 Telecommunications, the Internet, and Wireless Technologies
Week 5 Ethical and Social Issues in Information Systems
Week 6 IT Infrastructure and Emerging Technologies
Week 7 Securing Information Systems/Exam I
Week 8 E-Commerce: Digital Markets, Digital Goods
Week 9 Knowledge Management/Intelligent Systems
Week 10 Enhanced Decision Making
Week 11 Building Information Systems
Week 12 Managing Projects
Week 13 Managing Global Systems
Week 14 Student Presentations and Revisions
Week 15 Final Exam and Project Due
Program: B.S. in Information Systems
Course Name and Number: IS 260 - Networks and Business Data Communication
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisites: IS 200 (or BUS 325 and CIS 101)

Course Description:
Networks allow for the exchange of data between individual computing devices. Students are introduced to the underlying technology upon which information systems are built and become familiar with the fundamental concepts of networking and telecommunications and how these technologies can be used to enhance business performance. Particular emphasis is placed on convergence technologies, such as multimedia communications and Voice-Over-Internet Protocol, and the role of networks in the facilitation of these real-time applications. The technologies behind wireless and broadband networks are discussed. Additional topics include voice and data network design, monitoring tools and various network features (e.g., quality of service). Case studies are used to expose students to real-world scenarios.

Student Learning Outcomes:
At the end of this course, students are able to:
- Explain, analyze, and evaluate the key logical and technical components of a network infrastructure and the different types of networks, e.g., LANs, WANs, and Mobile;
- Identify the operational issues that can affect network performance;
- Analyze, design, and articulate a strategy for converged technologies to enhance business operations;
- Identify and employ tools that can be used to optimize the performance of a network; and
- Calculate and articulate the business value of investing in networking technology.

Students are required to:
- Analyze and discuss five case studies of networks deployed in an organizational or societal environment;
- Identify best designs for several example scenarios;
- Design and document a network system for a large organization; and
- Configure simple networks as part of a home lab assignment.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:

Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
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- Blackboard discussion 10%
- Midterm exam 20%
- Final project 40%
- Final exam 30%

**Required Text:**

**Course Outline:**
Week 1  Introduction and overview of Data Communications
Week 2  Discussion of Open Systems Interconnection model application layer
Week 3  Discussion of Open Systems Interconnection model physical layer
Week 4  Discussion of Open Systems Interconnection model data link layer
Week 5  Discussion of Open Systems Interconnection model network and transport layers
Week 6  Overview of local area networks (wired and wireless)
Week 7  Overview of backbone networks/MIDTERM EXAM
Week 8  Review of metropolitan and wide area networks
Week 9  Overview of internet architecture
Week 10  Review of network security topics
Week 11  Network design best practices review
Week 12  Network management considerations
Week 13  Converged technologies discussion
Week 14  Discussion of next generation networking
Week 15  FINAL EXAM and PROJECT

**Additional Resources:**
Program: B.S. in Information Systems
Course Name and Number: IS 250 - Computer and Network Security
Type: Required Course
Field of Study: Information Systems
Credits: 3 undergraduate credits
Prerequisites: IS 200 (or BUS 325 and CIS 101)

Course Description:
In an increasingly networked world, computer security, which consists of the practices and policies intended to prevent and monitor unauthorized access, misuse, modification, or denial of a computer or network, is more critical than ever. This introductory course provides a general overview of various computer and network security topics and concepts, including standards and protocols, cryptography, network- and infrastructure-level security, authentication and remote access considerations, securing wireless networks, identifying tools for security management and threat abatement, the role of change management, user security awareness, business continuity planning, privacy rights, and security, legal issues and challenges, and computer forensics. Students explore fundamental concepts associated with security planning and design, security risk analysis and mitigation, and security operational considerations. Particular emphasis is placed on understanding methods and techniques for risk assessment and risk mitigation.

Student Learning Outcomes:
At the end of this course, students are able to:
- Identify common threats related to computer and information systems security;
- Explain the importance of access controls for identification and authentication;
- Incorporate physical and environmental security into multiple network scenarios;
- Apply network performance management for effective risk mitigation;
- Configure and implement security protocols in select networks;
- Articulate the business value of performing regular information systems security audits;
- Explain the role of end user security awareness and education; and
- Articulate the value of business continuity planning.

Students are required to:
- Configure basic data networks;
- Configure tools for risk mitigation, such as firewalls and intrusion detection systems;
- Identify and analyze security gaps in corporate information systems;
- Analyze case studies on cryptographic methods and technology; and
- Create and document a comprehensive organizational security policy.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.
Assignments as a Percentage of Course Grade:
- Blackboard discussion 10%
- Midterm exam 20%
- Final Project 40%
- Final exam 30%

Required Text:

Course Outline:
- Week 1: General overview of information security as a process
- Week 2: Discussion of computer information systems vulnerabilities and attacks
- Week 3: Overview of various hacker techniques
- Week 4: Information security services: confidentiality, integrity, availability of data
- Week 5: Information security policies
- Week 6: Risk management topics
- Week 7: Security assessments and audits and **MIDTERM EXAM**
- Week 8: Information security best practices
- Week 9: Network security considerations
- Week 10: Security monitoring technologies
- Week 11: Discussion of basic cryptography
- Week 12: Encryption technology and tools
- Week 13: Managing through a security incident
- Week 14: Next generation security technologies
- Week 15: **FINAL EXAM**

Additional Resources:
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 210 - Software Application Programming I
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisite: None

Course Description:
The ability to write software programs is a critical skill in the IS field. Students are introduced to the fundamental concepts and terms of computer science that are necessary to program software, with an emphasis on problem-solving and algorithm development. Concepts such as data types, control structures, modular organization, and object-oriented programming, using practical examples that highlight the design, implementation, and testing phases of programming, are explained. Important topics such as program documentation, input/output considerations, and information assurance are stressed. Students build several well-documented and well-designed integratable code modules to present in class.

Student Learning Outcomes:
At the end of this course, students are able to:
- Understand the basic components of a software application and computer system;
- Explain the elements of computer programming languages;
- Research and develop an algorithm for a real-world problem; and
- Develop programs for simple to intermediate problems.

Students are required to:
- Develop algorithms;
- Create and run programs from specifications that require multiple data types, conditions, control structures, and methods; and
- Evaluate the correctness of program results.

Program Learning Outcomes Addressed by the Course:
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
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Course Grading and Requirements:

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Assignments as a Percentage of Course Grade:
- Quiz 15%
- Assignments 35%
- Midterm 25%
- Final 25%
Required Text(s):

Course Outline:
Week 1 – Computers and Programs
Week 2 – Looping
Week 3 – Computing with Numbers
Week 4 – Objects and Graphics
Week 5 – Sequences: Strings, Lists (Arrays), and Files I
Week 6 – Sequences: Strings, Lists, and Files II
Week 7 – Midterm and Defining Functions: functions and parameters, return values, modifying input parameters
Week 8 – Decision Structures
Week 9 – Application of Decision Structure
Week 10 – Loop Structures and Booleans
Week 11 – Simulation and Design I
Week 12 – Simulation and Design II
Week 13 – Defining Classes
Week 14 – Basic Object-Oriented Program
Week 15 – Final and Project
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 211 - Software Application Programming 2
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisite: IS 210
Course Description:
This second course in programming further develops the skills gained in Software Application Programming 1 by incorporating object-oriented programming calls into functional and procedural code. Design is discussed in depth, and students are introduced to Graphical User Interface (GUI) applications and arrays. Additional programming topics include file input/output, inheritance, polymorphism, text processing, and wrapper classes. For the final project, students will create and present a working and deployed application that adheres to coding best practices and includes complete documentation.

Student Learning Outcomes:
At the end of this course, students are able to:
- Design and develop code using arrays and classes;
- Design and implement graphical user interface (GUI) applications and develop event driven code;
- Describe inheritance, write inherited classes, and give reasons for using inheritance and polymorphism;
- Write code that detects and handles exceptions;
- Identify the characteristics of object-oriented programming, and create objects to solve particular problems that are well-suited to this programming paradigm; and
- Apply the phases of software development life cycle for a project.

Students are required to:
- Develop object-oriented modules embedded in procedural code;
- Analyze, design, and develop an application with user-friendly GUI;
- Create documentation for each of the stages of software development life cycle; and
- Evaluate the efficiency of a program.

Program Learning Outcomes Addressed by the Course:
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
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Assignments as a Percentage of Course Grade:
- Quizzes 15%
- Assignments 40%
- Final 25%
- Term Project 20%

Required Text(s):


Course Outline:
Week 1 – Review File Input/Output
Week 2 – Exception Handling
Week 3 – Lists (Arrays)
Week 4 – Conditionals and Recursion
Week 5 – String
Week 6 – Dictionaries
Week 7 – Classes and objects
Week 8 – Classes and functions, and Midterm
Week 9 – Classes and methods
Week 10 – GUI and Tkinter
Week 11 – Tuple
Week 12 – Inheritance
Week 13 – Search and Sorting
Week 14 – Thread
Week 15 – Final and Project
Program: B.S. in Information Systems  
Course Name and Number: IS 360 - Data Acquisition and Management  
Type of Course: Required Course  
Field of Study: Core  
Credits: 3 undergraduate credits  
Prerequisite: None  

Course Description:
In a world where more and more data of increasing complexity and scope is being collected by organizations of all types, the ability to organize and manage this data is the first step toward extracting value from it. Students are introduced to key topics and techniques associated with database management, including the difference between data and information from a data-centric point of view; managing data with and without databases; computer and data security; data cleansing, fusing, and processing techniques; combining data from different sources/integration; storage techniques, including very large data sets; and database privacy and security issues. Hands-on experience is critical throughout. Students are required to build several databases by importing, cleaning, manipulating, storing, and securing complex datasets that contain multiple types of data. An emphasis on applying critical thinking and creativity to the design of efficient and effective management solutions is necessary.

Student Learning Outcomes:
At the end of this course, students are able to:
- Evaluate and articulate the value and purpose of database management from a business perspective, including organizational requirements;
- Describe, apply, and evaluate the key technical activities and best practices associated with successful database management, such as:
  - storage techniques for very large data sets
  - data integration considerations
  - security and privacy issues
  - processing techniques
  - data cleansing and fusing
- Employ database management tools.

Students are required to:
- Import, clean, manipulate, store, and secure complex datasets that contain multiple types of data;
- Organize and manipulate semi-structured data sets;
- Build several databases for various informational and operational purposes; and
- Examine, and potentially manage/manipulate, “big data” sets using state-of-the-art tools.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
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Course Grading and Requirements:

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Assignments as a Percentage of Course Grade:
- Discussions, 25%
- Midterm Exam, 20%
- Final Exam, 20%
- Hands-On Project, 35%

Required Text(s):


Other sources of content will be utilized beyond textbooks: 1) Gartner Group research (available on the CUNY portal); 2) Consultant and vendor research and reporting; 3) Newspaper and journal reports (WSJ, NYT, Economist), 4) CUNY library, and 5) Market projections and forecasts

Course Outline:

Week 1 Introductions, course overview, Information vs. Data
Week 2 Managing data with and without a database, intro. to course hands-on project
Week 3 Storage technology of very large datasets
Week 4 Data processing techniques
Week 5 Data cleansing and hygiene
Week 6 Data security and privacy, and Midterm exam
Week 7 Data concurrency issues and challenges, hands-on project checkpoint
Week 8 Data types and implications for database management
Week 9 Managing distributed database environments
Week 10 Database management organizational considerations, database management reporting
Week 11 Data on the web
Week 12 Unstructured data
Week 13 Trends and directions in database management
Week 14 Vendor software, tools, market trends, and directions
Week 15 Final exam and hands-on project presentations, peer review
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 320 - Systems Analysis and Design
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisites: IS 200 (or BUS 325 and CIS 101)

Course Description:
The science of systems analysis and design requires IS professional to map and exploit the processes, methods, techniques, and tools that organizations use to conduct business. This course covers a systematic methodology for analyzing a business problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the business need, articulating business requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements—in particular, in-house development, development from third-party providers, or purchased commercial off-the-shelf (COTS) packages—and specifying the requirements for the information systems solution. Students gain hands-on experience with systems analysis and design methodologies and tools by analyzing the functionality and design of existing systems with regard to a specific business need, and developing requirements and a project plan for a new system.

Student Learning Outcomes:
At the end of this course, students are able to:
- Analyze and compile a list of goals, objectives, and constraints that a new system must fulfill for a given hypothetical business based on functions, policies, mission, people, and roles. Evaluate how they meld with any existing information technology infrastructure;
- Perform a feasibility analysis for proposed upgrades to an organization’s technology infrastructure;
- Develop a logical model of the business processes and their relationships to each other, business data, and external entities;
- Transform a logical process model into a physical process model;
- Design specifications for the data structures and elements involved in the processes;
- Analyze and document the activity (flow of events) that takes place within a given physical module;
- Design a user interface specification so that anyone can make easy use of the final product;
- Develop a set of entity-relationship diagrams to represent the logical relationship between entities in the system; and
- Formulate the implementation project plan for an operational system.

Students are required to:
- Analyze the functionality and design of the most common business IT/IS systems, e.g., CRM, ERP, HRIS;
- Compare variant designs and implementation for a particular type of system;
- Develop a requirements document by collecting end-user requirements and then developing/documenting the corresponding design using professional modeling tools; and
- Formulate a project plan for the system’s implementation.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
Proposed to Establish a Bachelor of Science in Information Systems

CUNY School of Professional Studies

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- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

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IS majors must earn a grade of C or better in all IS courses to meet the program's degree requirements.

Assignments as a Percentage of Course Grade:

- Case Studies 20%
- Quizzes 20%
- Midterm exam 10%
- Final exam 20%
- Design project 30%

Required Text(s):

Software:
IBM Rational Modeler

Optional Materials:

Course Outline:
Week 1 The Context of Systems Analysis and Design Methods
Week 2 The Systems Development Life Cycle
Week 3 Basics Object Orientated Analysis and Design
Week 4 Feasibility Analysis and the System Proposal
Week 5 Fact-finding Techniques and Requirements Discovery
Week 6 Transition from Systems Analysis to Systems Design
Week 7 Data and Process Modeling
Week 8 Process Modeling
Week 9 Use Case Models
Week 10 Behavioral Modeling
Week 11 Systems Design
  - Application Architecture and Modeling
Week 12 Data Modeling and Analysis
  - Database Design
Week 13 User Interface Design
Week 14 System Implementation
  - Systems Operation and Support
Week 15 Final Exam
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 350 - IS Strategy, Management, and Acquisition
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisite: Prerequisite: IS 211, HIM 361, IS 260, IS 250, IS 320, IS 300

Course Description:
One distinction between a good company and a great company is how well its information systems (IS) enable organizational capabilities. From a senior management perspective, we explore the acquisition, development, and implementation of plans and policies to achieve efficient and effective information systems. Students learn the fundamental concepts associated with high-level IS infrastructure and the systems that support the operational, administrative, and strategic needs of an organization. Through the use of case studies, students begin to develop an intellectual framework to critically assess IS infrastructures and emerging technologies, and how these enabling technologies might affect organizational strategy. The ideas developed and cultivated are intended to provide an enduring perspective that can help students make sense of an increasingly globalized and technology-intensive business environment.

Student Learning Outcomes:
At the end of this course, students are able to:

- Frame and articulate the various functions and activities within the information systems area, including the role of IT management and the Chief Information Officer (CIO), structuring of IS management within an organization, and managing IS professionals within the firm;
- Explain and quantify IS’s value as a source of competitive advantage for firms;
- Apply and evaluate the concepts of information economics at the enterprise level;
- Show how IS enables core and supportive business processes, as well as those that interface with suppliers and customers;
- Understand existing and project emerging information technologies;
- Evaluate the issues and challenges associated with successfully incorporating IS into a firm and structure IS-related activities to maximize the business value;
- Model and formulate strategic decision points for acquiring IS resources and capabilities including the ability to evaluate the different sourcing options;
- Identify information of different industries and function, and methods for extracting value from those particular types of information; and
- Define the role of IT control and service management frameworks, and quantify the value/costs/limitations of those controls in specific situations.

Students are required to:
- Analyze multiple case studies in a variety of industries, continually identifying commonalities, and finding idiosyncratic differences of various industries; and
- Develop and present a strategic technology plan for a medium-sized firm, justifying all assumptions.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage technology projects through the product (often software and data-related) development lifecycle;
• Assess the impact and strategic value of emerging technologies;
• Apply systems-thinking and design-thinking skills across a broad range of industries and environments; and
• Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

Grading Scale

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
Weekly Cases 50%
Project (Strategic Plan) 50%

Required Text(s):

Course Outline:
Week 1 Historical Perspective of IT, Current Trends
Week 2 Theories and Models of Business Firms, Strategic Management Principles
Week 3 Strategic Alignment, IT Value, and Organizational Analysis
Week 4 Critical Success Factors of IT Strategy
Week 5 The Business Planning Process; Risk, and Tradeoff Analysis
Week 6 Strategic Alignment for Business Value Creation
Week 7 Enterprise and Technology Architectures
Week 8 Strategic Programs: Planning and Execution
Week 9 IT Resource and Sourcing Strategies
Week 10 The CIO Enabling IT Governance
Week 11 Business Innovation and Information Management
Week 12 Managing Innovation
Week 13 Innovation and Driven Knowledge Management
Week 14 Knowledge Management Strategies
Week 15 Case Study Presentations
CUNY School of Professional Studies

Program: B.S. in Information Systems  
Course Name and Number: IS 300 - Enterprise Architectures and Applications  
Type of Course: Required Course  
Field of Study: Core  
Credits: 3 undergraduate credits  
Prerequisite: IS 200 (or BUS 325 and CIS 101)

Course Description:
Enterprise architecture exists at the intersection of technology and business strategy and consists of the vision, principles, and standards that guide the purchase and deployment of technology within an enterprise. Students explore the design, selection, implementation, and management of enterprise-wide IT solutions. Frameworks and strategies for infrastructure management, system administration, data/information architecture, content management, distributed computing, middleware, legacy system integration, system consolidation, software selection, IT investment analysis, and total cost of ownership calculation are discussed. Students examine multiple types of IS functions, such as messaging and collaboration systems, business intelligence and analytics systems, customer relationship management (CRM) systems, enterprise resource planning (ERP) systems, and content management (CM) systems. Cloud computing, a widely used architecture to deploy enterprise applications as a service over the Internet, is also included. Case studies are employed to expose students to real-world scenarios.

Student Learning Outcomes:  
At the end of this course, students are able to:  
- Utilize enterprise architecture as a strategy to create a foundation for business execution;  
- Provide templates and best practices for authoring requirements, principles, standards, and guidelines;  
- Articulate how functional, procedural, and technical aspects of business and IT environments pertain to enterprise-wide deployment;  
- Develop elementary enterprise architectures;  
- Analyze a company's ability to develop and support an EA framework;  
- Identify specific risk mitigation strategies to improve the potential for success; and  
- Identify and create enterprise standards and re-use of components for reducing cost, complexity, and improving productivity.

Students are required to:  
- Create/present both an enterprise system design using professional modeling tools and an implementation plan.

Program Learning Outcomes Addressed by the Course:  
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;  
- Build secure, reliable, and accurate software systems using programming and database skills;  
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;  
- Manage technology projects through the product (often software and data-related) development lifecycle;  
- Assess the impact and strategic value of emerging technologies;  
- Apply systems-thinking and design-thinking skills across a broad range of industries and environments; and  
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

**Assignments as a Percentage of Course Grade:**
- Weekly Discussions and Cases 20%
- Midterm 15%
- Final Exam 15%
- Systems Design Project 25%
- System Implementation Project 25%

**Required Text(s):**

**Course Outline:**
Week 1  An Overview of Enterprise Architecture  
Week 2  The Structure and Culture of Enterprises  
Week 3  The Value and Risk of Creating an Enterprise Architecture  
Week 4  The Implementation Methodology  
Week 5  The Analysis and Documentation Framework  
Week 6  Components and Artifacts of an Enterprise Architecture  
Week 7  Developing Current and Future Architecture Views: Midterm  
Week 8  Developing an Enterprise Architecture Management Plan  
Week 9  The Role of Investment Planning, Project Management, Security, and Privacy  
Week 10  The Enterprise Architecture Repository and Support Tools and IT Investment Analysis and Calculation of Total Cost of Ownership (TCO)  
Week 11  Future Trends in Enterprise Architecture and Frameworks and Strategies for Collaboration Systems  
Week 12  Frameworks and Strategies for Enterprise Resource Planning (ERP) Systems  
Week 13  Frameworks and Strategies for Data Analytics and Business Intelligence (BI) Systems  
Week 14  Frameworks and Strategies for Cloud Computing  
Week 15  Final Exam and Project Presentation

**Additional Resources:**
- Enterprise Architecture Center of Excellence  [https://www.eacoe.org](https://www.eacoe.org)  
- Enterprise Architecture in Europe/UK  [http://www.irmuk.co.uk/](http://www.irmuk.co.uk/)  
- The MODAF Framework  [https://www.gov.uk/mod-architecture-framework](https://www.gov.uk/mod-architecture-framework)  
- SAP’s ERP Application (ECC Modules)  [http://help.sap.com/ecc](http://help.sap.com/ecc)  
- VMware’s ESXi Architecture  [http://www.vmware.com/resources/techresources/1009](http://www.vmware.com/resources/techresources/1009)  

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CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 499 - IS Capstone
Type of Course: Required Course
Field of Study: Core
Credits: 3 undergraduate credits
Prerequisite: Senior status and permission of the program’s academic director

Course Description:
Synthesizing complex information and applying that information in the context of a real-world scenario is a high-level ability that employers increasingly demand. In this course, students integrate the skills developed in previous classes into a comprehensive body of knowledge to provide tangible evidence of their competence. The Capstone has two components: 1.) submission of a portfolio that consists of work completed during the program presented in a holistic manner, and 2.) development of a final IS project with emphasis on one or two areas of the profession, and grounded in a particular real-world context. For the project, a problem is identified, then analyzed, designed, and implemented with a professional-quality information system that contributes to a solution. In addition, students must be able to articulate the value of and practical challenges associated with the IS solution. Students may work either independently or in a group (no larger than three, with the permission of the instructor), selecting a subject that is in line with the students’ career aspirations, and ideally builds on ideas and work that began in other classes. The work developed in the Capstone is presented to faculty and students, and the larger information systems community.

Student Learning Outcomes:
At the end of this course, students are able to:
- Independently identify an opportunity for IS to contribute value to a problem (done at beginning of senior year with student advisor);
- Demonstrate the system’s value (framed early in the senior year);
- Plan the systems implementation (as much as possible, also done throughout the senior year); and
- Implement the system.

Students are required to:
- Demonstrate a comprehensive and practical understanding of the role of information systems for organizations and society; and
- Plan, justify, and implement a functioning information system.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
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Course Grading and Requirements:

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
- Presentation of Portfolio 20%
- Capstone Project 80%

Required Text(s):
The instructor will identify resources appropriate to each of the project teams.

Course Outline:
In addition to specific topics identified below, the course emphasizes design-thinking concepts and practice as it relates to business process. Considerations regarding value creation, organizational, and social aspects of business process are stressed throughout.

Week 1 Formalizing the topic (developed at the beginning of senior year)
Week 2 Finalizing the project proposal
Week 3 Presentation of design documents
Week 4 Continued work
Week 5 Presentation of the portfolio to consortial faculty and academic community leaders
Week 6 Continued work – progress report
Week 7 First presentation of system
Week 8 Continued work – progress report
Week 9 Continued work – progress report
Week 10 Continued work – progress report
Week 11 First draft of final deliverable
Week 12 Revisions – Faculty consult
Week 13 Continued work – progress report
Week 14 Loose ends – Faculty consult
Week 15 Capstone presentation to department
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 374 - Business Process Design and Workflow Analysis
Type of Course: Elective
Field of Study: MIS Track, Required Course
Credits: 3 undergraduate credits
Prerequisite: IS 200 or BUS325

Course Description:
The analysis and design of business processes is critical to improving quality and efficiencies. Moreover, identifying process and workflow are the first steps to sourcing or building software systems. This course provides an introduction to business process design and workflow analysis, as both a management discipline and as a set of enabling technologies. Students learn the key concepts, terms, methodologies, techniques, and technologies in business process design. Hands-on experience with process modeling tools and technologies used to support workflow analysis is provided. Students learn the practices and technologies that are making "process thinking" a new approach to solving business problems and continuously improving organizational competitiveness and performance. A semester-long project using open source process design tools is developed and presented at the end of the course. Case studies are used to expose students to real-world scenarios. (e.g., McDonald Brothers case study).

Student Learning Outcomes:
At the end of this course, students are able to:
- Explain and exploit the value and purpose of business process design and workflow from a business and technology perspective;
- Identify the key technical activities and best practices associated with successful business process design, workflow, and business improvement;
- Create workflow documentation for multiple organizational functions and processes; and
- Articulate the concepts of service design.

Students are required to:
- Use a business process design tool to complete a full-term course project with tangible real-world type results.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
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IS majors must earn a grade of C or better in all IS courses to meet the program's degree requirements.

**Assignments as a Percentage of Course Grade:**
- Case discussions 20%
- Quizzes 10%
- Midterm exam 20%
- Final exam 20%
- Hands-on project 30%

**Required Text(s):**


Other sources of content beyond the textbook.
- Gartner Group research available on the CUNY portal
- Consultant and vendor research
- Newspaper and journal reports
- CUNY SPS library

**Course Outline:**
In addition to specific topics identified below, the course will emphasize design thinking concepts and practice as it relates to business process. Considerations regarding value creation, organizational, and social aspects of business process will be stressed throughout.

Week 1 Business process and improvement: An approach
Week 2 Introduction to design thinking and practice
Week 3 Process identification and discovery
Week 4 Process mapping
Week 5 Process modeling
Week 6 Process improvement and redesign
Week 7 “As-Is” modeling
Week 8 Personas and use case scenario analysis
Week 9 Qualitative process analysis
Week 10 Quantitative process analysis
Week 11 Data integration
Week 12 Process automation
Week 13 Service design
Week 14 Implementation considerations
Week 15 Final exam and project presentation
Program: B.S. in Information Systems
Course Name and Number: IS 325 - Computer Forensics
Type of Course: Elective
Field of Study: General IS Track
Credits: 3 undergraduate credits
Prerequisites: IS 205, IS 360, IS 260, IS 250

Course Description:
Computer and digital forensics is the science of recovering and investigating digital evidence from technology. In this course, students build on a broad technical knowledge of computer systems to study phenomena such as computer crimes, hacking, producing evidence, and fraud investigation. Topics include Windows Registry Analysis, recovering deleted files, and Solid State Drives (SSD) operations versus Hard Disk Drive (HDD) functions. The limitations of forensic analysis are also covered. Upon completion of the course, students have a basic knowledge of computer forensics concepts, chain of custody/evidence handling, and computer forensic tools. Case studies are used to expose students to real-world scenarios.

Student Learning Outcomes:
At the end of this course, students are able to:
• Seize digital evidence from computer systems;
• Recover, and analyze operating system artifacts of forensic value;
• Evaluate and apply various forensic tools and practices, as well as apply the tools;
• Demonstrate proper Chain of Custody Procedures;
• Reconstruct events from various computer systems;
• Identify and explain the kinds of digital evidence that are relevant for a large array of crimes; and
• Articulate the responsibilities and liabilities of a computer forensic investigator.

Students are required to:
• Prepare and complete proper Chain of Custody (CoC) documents;
• Complete an individual final project that analyzes a forensic data set and report findings; and
• Collect evidence and build a cybercrime case.

Program Learning Outcomes Addressed by the Course:
• Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Assess the impact and strategic value of emerging technologies;
• Apply systems-thinking and design-thinking skills across a broad range of industries and environments; and
• Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

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IS majors must earn a grade of C or better in all IS courses to meet the program's degree requirements.
Assignments as a Percentage of Course Grade:
- Discussions 10%
- Exams 25%
- Forensic Case Report 35%
- Evidence Presentation 30%

Required Text(s):
None, but we utilize blogs, publications, etc., for reference materials.

Recommended:

Course Outline:
Week 1: “What is Computer Forensics?”, “Tools of the Forensic Examiner”
Week 2: Hard Drive Structure: Sectors/Clusters/Slack Space
Week 3: Hard Drive Structure: FAT (FAT32) and MFT (NTFS)
Week 4: Hard Drive Structure: Volumes/VBR/MBR
Week 5: Forensic Acquisition
Week 6: File Signatures, File Carving, and File Verification
Week 7: Windows Artifacts I
Week 8: Windows Artifacts II
Week 9: Windows Registry
Week 10: Pagefile.sys/Hiberfile.sys
Week 11: Mac OS Artifacts
Week 12: Encryption: BitLocker, FileVault2, Others (Safeboot, Credent, etc.)
Week 13: Evidence Handling
Week 14: Mobile Forensics Overview
Week 15: Open Topics/Discussion

Additional Resources:
http://www.appleexaminer.com
www.htcia.org
http://computer-forensics.sans.org/blog
https://twitter.com/robtlee
http://hackingexposedcomputerforensicsblog.blogspot.com/
http://blog.iphone-dev.org/
https://twitter.com/MuscleNerd
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: MATH 315 - Discrete Mathematics and Linear Algebra
Type of Course: Elective
Field of Study: MIS track requirement
Credits: 3 undergraduate credits
Prerequisite: MATH 215 or BUS 310

Course Description:
Computational mathematics—including discrete math and linear algebra—provide the foundation for modeling real-world phenomena such as consumer behavior, web trends, traffic, crime, and clinical success rates. Students learn the basic mathematics that is needed for programming and entry-level data science. Throughout the course, students have a chance to apply mathematical theory to real-world data sets and gain an understanding of the relationship between discrete mathematics and IS. Topics include logic, set theory, functions and sequences, algorithms and integers, counting, graphs, definitions, isomorphism, graph algorithms, trees, basic probability, matrix algebra, systems of linear equations, eigenvalues, eigenvectors, recurrence relations, and linear programming.

Student Learning Outcomes:
At the end of this course, students are able to:
- Apply elementary combinatorics and combinatorial data analysis;
- Represent phenomena and processes as functions and relations;
- Apply counting techniques to real-life problems;
- Calculate probabilities for practical and complex situations;
- Apply the basics of graphs and graph algorithms to problems such as social network analysis;
- Represent real-world problems with tree structures; and
- Identify the appropriate quantitative methods to solve specific problems and compute solutions accordingly.

Students are required to:
- Solve large numbers of applied mathematical problems;
- Demonstrate their proficiency as a data scientist in training by applying discrete math and linear algebra to real-world phenomena in a final project; and
- Demonstrate a fluency in speaking about quantitative methods when presenting their final project.

Program Learning Outcomes Addressed by the Course:
- Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.
Assignments as a Percentage of Course Grade:
- Discussions: 5%
- Homework: 20%
- Quizzes: 20%
- Final: 35%
- Project: 20%

Required Text(s):

Course Outline:
Week 1 – Set theory, functions, and sequences
Week 2 – Logic: form and equivalence
Week 3 – Valid and invalid arguments; number systems
Week 4 – Algorithms and Integers
Week 5 – Counting
Week 6 – Probability 1
Week 7 – Probability 2
Week 8 – Graphs, isomorphism, algorithms
Week 9 – Trees
Week 10 – Vectors
Week 11 – Matrix algebra
Week 12 – Systems of linear equations
Week 13 – Determinants, eigenvalues, eigenvectors, diagonalization, recurrence relations
Week 14 – Linear programming
Week 15 – Final exam

Additional Resources:
http://www.mhhe.com/math/advmath/rosen/student/webres/
Program: B.S. in Information Systems
Course Name and Number: IS 326 - E-Commerce for Information Systems
Type of Course: Elective
Field of Study: MIS track requirement
Credits: 3 undergraduate credits
Prerequisite: IS 200 (or BUS 325 and CIS 101)

Course Description:
The Internet and an assortment of information technologies have led to the development and continuing evolution of electronic commerce (e-commerce), which has revolutionized the way people, organizations, and governments interact with each other. This course approaches the study of e-commerce strategies, operations, workflows, and technologies from a value-creating perspective. Through lectures, case studies, and hands-on projects, students develop an understanding of the special characteristics that identify the similarities and differences between e-commerce and other forms of commerce, such as hybridized models. Students develop a conceptual foundation to help them identify and evaluate new trends, innovative business opportunities, and the potential impacts to various industries, as well as the fundamental technological structures required for implementation. In addition, students learn to assess the potential limitations, issues, and risks associated with various e-commerce initiatives. For IS majors, students must produce an e-commerce solution, either using off-the-shelf tools or by coding a complete solution.

Student Learning Outcomes:
At the end of this course, students are able to:
- Detail the history of e-commerce, and identify the major phases of development as a social and commercial phenomenon;
- Compare and contrast characteristics of e-commerce compared with traditional modes of doing business;
- Categorize and predict emerging e-commerce technologies and their impact on business, society, and politics;
- Design and apply new business models, services, operations, and processes for doing e-commerce;
- Understand and apply marketing methods in e-commerce;
- Describe and explain e-commerce security issues and strategies to address them;
- Identify, analyze, and explain ethical dilemmas and legal issues associated with various e-commerce technologies and business practices, and then address them in designing internet ventures; and
- Analyze, plan, design, and build an effective e-commerce solution.

Students are required to:
- Analyze several cases and existing commerce sites to identify good and bad designs/functions;
- Mock up improvements and extensions to existing sites; and
- Design and develop a working e-commerce solution.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.
Course Grading and Requirements:

Grading Scale

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Assignments as a Percentage of Course Grade:
- Assignments and Cases: 40%
- Exams: 20%
- Team Project: 40%

Required Text(s):

Course Outline:
Week 1: E-commerce Business Models
Week 2: E-commerce Infrastructure & Technologies, Part 1
Week 3: E-commerce Infrastructure & Technologies, Part 2
Week 4: Designing and Planning an E-commerce Solution, Part 1
Week 5: Designing and Planning an E-commerce Solution, Part 2 / Exam 1
Week 6: Online Security and Payment Systems
Week 7: Order Fulfillment
Week 8: E-commerce Marketing Concepts and Communications, Part 1
Week 9: E-commerce Marketing Concepts and Communications, Part 2
Week 10: Ethical, Business, Social, and Political Issues, Part
Week 11: B2B E-commerce: Supply Chain Management and Collaborative Commerce
Week 12: E-commerce Site Analysis and Properties 1
Week 13: E-commerce Site Analysis and Properties 2
Week 14: Special Topics/Exam 2
Week 15: Final Exam-Week and Team Project Due

Additional Resources:
E-commerce Times:
http://www.ecommercetimes.com/
Practical E-commerce:
http://www.practicalecommerce.com/articles
New York Times Technology Section:
Wall Street Journal Technology Section:
Program: B.S. in Information Systems
Course Name and Number: IS 380 - Geographic Information Systems
Type of Course: Elective
Field of Study: Elective
Credits: 3 undergraduate credits
Prerequisite: IS 200 (or BUS 325 and CIS 101)

Course Description:
Modern Geographic Information Systems (GIS) have found their way into many aspects of everyday life, nested as they are on smartphones and PDAs and installed in automobiles. GIS applications are broad, from operations and logistics to marketing and sales. In our personal lives, GIS is. These technologies allow users, from individuals to organizations, to visualize, question, analyze, and interpret the world and its underlying geographical processes. Students learn about the hardware, software, and processes incorporated into GIS. Various methods for interpreting and analyzing spatial data, including cartography, remote sensing, spatial statistics, and survey research are included. Case studies are used to expose students to real-world scenarios. Students also gain hands-on experience using open-source GIS platforms.

Student Learning Outcomes:
At the end of this course, students are able to:
• Use specialized geospatial software to transform ellipsoid, datum, and/or map projection to georegister one set of geospatial data to another;
• Understand and explain cartographic symbolization;
• Create thematic maps: classification, Choropleth maps, dot density maps;
• Describe and perform the basic operations of GIS for data input and secondary data;
• Employ simple spatial reasoning techniques to make inferences about space, spatial patterns, and spatial relationships; and
• Use the basic theory and applications of remote sensing, aerial imagery, and global position system.

Students are required to:
• Implement a series of labs using state-of-the-art GIS software systems for some topics;
• Study different open source GIS software systems and understand the different features provided;
• Manipulate the GIS software and computer systems with good practice patterns;
• Complete a term project that combines GIS theory and practice under the supervision of the instructor.

Program Learning Outcomes Addressed by the Course:
• Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Assess the impact and strategic value of emerging technologies;
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Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

**Assignments as a Percentage of Course Grade:**
- Discussion 10%
- Lab 35%
- Midterm exam 20%
- Group studio project 15%
- Final exam 20%

**Required Text(s):**

**Course Outline:**
Week 1 – Mathematical Foundations
Week 2 – Presenting Data and Ideas
Week 3 – Principles of GIS
Week 4 – US Census Data and Mapping
Week 5 – GIS Data Structures and Formats
Week 6 – Secondary Data Sources
Week 7 – Organizing Geographic Data
Week 8 – Introduction to GPS and Remote Sensing
Week 9 – ArcCatalog and the Geodatabase
Week 10 – Referencing Data to Real Locations
Week 11 – Establishing and Reasoning Across Geographical Relationships
Week 12 – Basic GIS Analysis Operations
Week 13 – Mapping Your GIS Analysis
Week 14 – Project and Review
Week 15 – Final Exam
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 339 - Health Information Technology
Type of Course: Elective
Field of Study: Elective
Credits: 3 undergraduate credits
Prerequisite: IS 200 (or BUS 325 and CIS 101)

Course Description:
Information systems hold great promise for improving healthcare quality and lowering skyrocketing healthcare costs. From applying best practices in information systems to challenges in health information technology (HIT), students are prepared to enter the health technology field. Topics include an introduction to HIT standards, health-related data structures, and software applications and enterprise architecture in healthcare and public health organizations. The workflow and processes embedded in the healthcare industry are discussed in depth. Patient privacy and security are a critical part of this course. Considerable time is spent exposing students to emerging trends in healthcare technologies, such as scanning and imaging devices that produce data. Case studies are included to ensure that students have a broad exposure to technology in healthcare. Students gain hands-on experience with open source HIT systems.

Student Learning Outcomes:
At the end of this course, students are able to:
- Describe general functions, purposes, and benefits of health information systems in various healthcare settings;
- Describe the federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems;
- Compare/contrast different types of health information systems in terms of their ability to meet the needs of various types of healthcare enterprises;
- Explain how electronic health records affect patient safety, quality care, efficiency, productivity, and reporting/documentation mechanisms;
- Propose strategies to minimize major barriers to the adoption of electronic health records.
- Explain how the principles of healthcare data exchange and healthcare data standards relate to patient care, productivity, and data analysis; and
- Describe emerging healthcare technologies and the data that they produce;
- Evaluate, using case studies, the impact of the use of electronic health records on providers and patients.

Students are required to:
- Review and analyze any new and innovative products proposed in the healthcare market;
- Analyze and discuss case studies on electronic health records and other component systems;
- Complete a team project related to the use of information systems in a hospital environment; and
- Access and deploy an electronic health record system and analyze the workflow in a practice setting.

Program Learning Outcomes Addressed by the Course:
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
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Assignments as a Percentage of Course Grade:
- Case Studies 20%
- Assignments 25%
- Practice Project 15%
- Hospital Project 20%
- Final Exam 20%

Required Text(s):
All readings are internet based. Extensive use of the Curriculum Materials developed by the Office of the National Coordinator, Department of Health and Human Services is utilized in this course.

Course Outline:
Week 1: What is Health Informatics?
Week 2: Health Information Systems Overview
Week 3: Electronic Health Records, Part I
Week 4: Electronic Health Records, Part II
Week 5: Computerized Provider Order Entry (CPOE)
Week 6: Clinical Decision Support Systems, Part I
Week 7: Clinical Decision Support Systems, Part II
Week 8: Midterm and Final Project Proposals
Week 9: Patient Monitoring Systems, Part I
Week 10: Patient Monitoring Systems, Part II
Week 11: Medical Imaging Systems
Week 12: Consumer Health Informatics, Part I
Week 13: Consumer Health Informatics, Part II
Week 14: Administrative, Billing, and Financial Systems
Week 15: Master Patient Index and the Unique Patient Identifier, and Final Exam
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 370 - Human-Computer Interaction
Type of Course: Elective
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisite: IS 211

Course Description:
User-friendly design is a key driver of the rapid adoption and continued use of software systems. Human-Computer Interaction (HCI) is an interdisciplinary field that studies the design, evaluation, and implementation of computer user interfaces (UX). HCI integrates cognitive psychology, design, and computer science among other disciplines to better understand the factors that influence technology’s usability and acceptance. This course examines methods (e.g., design thinking), techniques (e.g., user-centered design), and tools used in the design and evaluation of information systems, as well as the human performance that results from good design. Societal impacts of HCI, such as accessibility, are also discussed. Case studies are used to expose students to real-world scenarios. Students produce and present a semester-long project.

Student Learning Outcomes:
At the end of this course, students are able to:
- Design, implement, and evaluate effective user interfaces (UX);
- Articulate and create a blueprint of the interplay between humans, tasks, technologies, and contexts;
- Employ the concepts of user difference, user experience, and group collaboration;
- Apply behavioral theories and design frameworks that lead to theory-driven designs;
- Incorporate appropriate I/O techniques in their designs;
- Gather and analyze user requirements within the framework of participatory design;
- Develop and conduct informal user testing; and
- Use contemporary design packages in their work.

Students are required to:
- Analyze several different technology interfaces, explain what parts are designed well, and make suggestions to improve the parts that do not work;
- In teams of two, collect, gather, analyze, and document requirements for an interactive technology;
- In teams of two, create a full information systems design, including the user interface, device, and interactions; all demonstrated with a wireframe model, and use case analysis; and
- In teams of two to four, build a working prototype of selected components of the wireframe.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

**Assignments as a Percentage of Course Grade:**
- 50% participation — Technology Examples and Analysis, Discussions, Reflections, and Other Assignments
- 50% project - 30% Overall Group Submission and 20% Individual Contribution

There will be no quizzes, tests, exams, etc.

**Required Text(s):**

Other readings as assigned. All are open source or available on e-reserves.

**Course Outline:**
- Week 1 – How People Interact with Technology
- Week 2 – The UX Lifecycle
- Week 3 – Context Inquiry and Analysis
- Week 4 – Interaction Design
- Week 5 – Cognition in HCI
- Week 6 – Model Building
- Week 7 – Design Thinking and Mental Models
- Week 8 – Design Production
- Week 9 – UX Goals and Metrics
- Week 10 – Prototyping
- Week 11 – Evaluation and Testing 1
- Week 12 – Evaluation and Testing 2
- Week 13 – Design Guidelines and Implementing Systems
- Week 14 – Methods for Agile Development
- Week 15 – Final Project Presentations
Program: B.S. in Information Systems
Course Name and Number: IS 311 - Introduction to Data Science
Type of Course: Elective
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisite: IS 200 (or BUS 325 and CIS 101), MATH 315, IS 211, HIM 361
Course Summary:
The ability to understand, analyze, and interpret large and disparate data sets is increasingly important for gaining competitive advantage in the marketplace, and improving social conditions. This course uses the statistical and mathematical techniques that form the basis of descriptive and predictive analytics to extract qualitative insights from a variety of data types (e.g., customer preferences, purchasing and pricing, social network interactions, text, images, and mobile and ubiquitous outputs). Using existing programming and data management skills students apply them to the areas of data acquisition and cleaning, data exploration and visualization, mathematical model development, and graphical report creation. Areas of application can include social analytics, search engine algorithms, recommender systems, market analysis and demand estimation, customer segmentation and product pricing, healthcare, and transportation. In addition, students use current statistical analysis tools such as R. Case studies are used throughout the course.

Student Learning Outcomes:
At the end of this course, students are able to:
• Identify, define, and analyze data-intensive problems using descriptive and predictive analytic techniques;
• Provide qualitative insights into real-work phenomena through the analysis of data;
• Formulate context-relevant questions that lead to actionable outcomes; and
• Develop a strong understanding of current analytics tools and keep pace with changes in the field.

Students are required to:
• Frame critical questions about real-world phenomena that can be answered by analyzing data;
• Find open-source datasets to help answer these questions;
• Prepare the datasets for analysis;
• Analyze the data and present the results in visualizations and reports;
• Master select packages in the R-programming toolkit;
• Deploy working code modules on Github; and
• Present results to both organizational and technical audiences.

Program Learning Outcomes Addressed by the Course:
• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Assess the impact and strategic value of emerging technologies;
• Apply systems thinking and design thinking skills across a broad range of industries and environments; and
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Assignments as a Percentage of Course Grade:
- Discussions 10%
- Quizzes 20%
- Assignments 50%
- Final Project 20%

Required Text(s):


Various Open-Source Materials as Required

Course Outline:
Week 1 – Asking Good Questions and the Data Value Chain
Week 2 - Modeling Phenomena with Mathematical Models
Week 3 – Descriptive Models 1
Week 4 – Descriptive Models 2
Week 5 – Data Visualization 1
Week 6 – Data Visualization 2
Week 7 – Predictive Models 1
Week 8 – Predictive Models 2
Week 9 – Social Network Analysis 1
Week 10 – Social Network Analysis 2
Week 11 – Grappling with Messy and Big Data
Week 12 – Introduction to Data Mining
Week 13 – Overview of Machine Learning
Week 14 – Answering Questions by Telling Stories
Week 15 – Final Project Presentations

Additional Resources:
- RStudio Development Environment
- Python IDE
- GitHub
Program: B.S. in Information Systems
Course Name and Number: IS 205 - IT Infrastructure and Support
Type of Course: Elective course
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisites: None

Course Description:
Computer system downtime raises the costs of doing business and lowers productivity. For technology vendors, good customer support is a driver of sales. This introductory course builds on the foundational skills needed by computer desktop support personnel. A particular emphasis is placed on helping the student to build the technical skills required to take the CompTIA A+ certification exams, which include the ability to install, build, upgrade, repair, configure, optimize, and maintain computer and mobile systems. The course also prepares students to support popular software applications. Designed for individuals with minimal technical understanding of computer hardware, software, networks, processes, and portable devices, students learn these essentials for helpdesk management. Simulations are used to provide hands-on experience.

Student Learning Outcomes:
At the end of this course, students are able to:
- Configure and support basic computer hardware and operating systems as well as networks and mobile devices;
- Use, troubleshoot, and support directory and file management, CPUs and motherboards, POST and boot process functions, computer BUS structures, monitors and printers, and computer networks;
- Manage general computer maintenance, safety, hazard avoidance, and disposal considerations;
- Support popular software applications such as MS Office, email, and security packages; and
- Manage an IT helpdesk.

Students are required to:
- Demonstrate hands-on skills through a series of computer lab simulations dealing with: electrical power supplies and components; input/output systems including BIOS and CMOS; computer memory; expansion card installation and troubleshooting; peripheral devices and data storage devices; operating systems; security, file encryption, security hardware and software; monitoring tools and backup, and restore techniques;
- Develop and demonstrate skills related to customer service and helpdesk management as part of the labs; and
- Prepare for the A+ exam through a series of quizzes and a final exam.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Assess the impact and strategic value of emerging technologies;
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.
Assignments as a Percentage of Course Grade:

- Blackboard discussion 20%
- Quizzes 20%
- Labs 30%
- Final exam 30%

Required Text:

Additional Resources:

Various open source materials for covering support for Apple computers, portable devices, and software applications. Much of this material will come directly from vendor websites.

Course Outline:
- Week 1  Review of computer components and
- Week 2  Overview of processor types, motherboards, and system buses
- Week 3  Understanding BIOS and memory basics
- Week 4  Overview of ATA/IDE interfaces
- Week 5  Overview of storage technologies
- Week 6  Inside of Apple computers
- Week 7  Review of video and audio hardware
- Week 8  Overview of input/output devices and power supplies
- Week 9  Internet connectivity and local area networks
- Week 10  Mobile devices and PDAs
- Week 11  Building and upgrading systems
- Week 12  Installing software and managing backups
- Week 13  Troubleshooting and supporting desktop applications
- Week 14  Helpdesk management
- Week 15  Final Exam and Practicum
Program: B.S. in Information Systems
Course Name and Number: IS 410 - Principles of Informatics
Type of Course: Elective
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisites: IS 200 (or BUS 325 and CIS 101)

Course Description:
Informatics places the study of information systems into a human context. Information systems professionals need to understand human behavior as it shapes, and is shaped by, a confluence of information made available through technology. Key ethical and legal issues that arise in computer-driven environments, including the ownership, use, and sharing of electronic information; protection of the rights of information producers, providers, and users; protection of minors; protection of privacy; harassment; ADA compliance; and the role of government are discussed. Additionally, there is an examination of human attitudes toward, and usage of hardware and software in, the global environment. Students consider specific applications of the course content to their specialized fields of study (e.g., business information systems, health information systems, educational technologies, etc.).

Student Learning Outcomes:
At the end of this course, students are able to:

- Chronicle and present the historical and philosophical underpinnings of the contemporary concepts of ownership, most broadly as it applies to all property, and more specifically, as it applies to the self and what the individual produces (intellectual property or IS);
- Extend and apply the principles of intellectual property ownership to the ancillary concepts of the legal use and illicit appropriation of IP and models of shared IP;
- Associate ownership models of IP with the rights of the individual to privacy of personal information and the needs of the overall society for protection and security;
- Recognize and champion the importance of universal access to information;
- Chronicle and discuss how human attitudes towards the place of technology in their lives has evolved and is evolving further; and
- Apply their understanding of human rights, behaviors, and desires to shaping information-sharing models in a given discipline.

Students are required to:

- Summarize a variety of texts and videos on the subject matter;
- Follow readings with written responses;
- Participate weekly in online discussion forums;
- Participate in online communities inside and outside of the class as appropriate to the subject matter covered; and
- Complete a final project incorporating content learned in the course and tailored to their particular field of interest.

Program Learning Outcomes Addressed by the Course:

- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
• Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:

• Weekly Discussions: 15%
• Weekly Reading Responses: 15%
• Midterm Exam: 20%
• Final Project: 25%
• Final Exam: 25%

Required Text(s):
The course uses a mix of text and non-text (multimedia) materials. Most are available free on the internet. Others are available through CUNY library subscription databases. The Baruch College Newman Library provides access to these databases, as well as other library services for the CUNY School of Professional Studies (SPS) (http://www.baruch.cuny.edu/library/sps/).

Course Outline:
Week 1 – Ownership and Property
Week 2 – Ownership of Self
Week 3 – What Constitutes Intellectual Property?
Week 4 – Ownership of Intellectual Property
Week 5 – Sharing Property, Sharing Data
Week 6 – Theft of Property
Week 7 – Project Progress Reports and Midterm
Week 8 – Privacy and Personal Life
Week 9 – Privacy and Public Life
Week 10 – Privacy, Security, and the Public Weal
Week 11 – Connectivity Issues and the Global Perspective
Week 12 – Accessibility of Digital Information
Week 13 - Human Attitudes Towards, and use of, Hardware and Software in the Global Environment
Week 14 – Trends in Access to Information
Week 15 – Final Exam and Project
Program: B.S. in Information Systems
Course Name and Number: IS 332 - Social Media
Type of Course: Elective
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisite Courses: None
Course Description:
Social media, and more generally, social computing, bring people together in virtual spaces to facilitate various kinds of technology-mediated social participation, such as connecting, discussing, artifact and information sharing, and recommending. Understanding the applications and platforms that are available today—such as social networking, virtual communities, artifact and knowledge-sharing sites, mobile and location-based technologies/services, video, blogs, wikis, etc.—is critical for recognizing emergent trends in this rapidly changing space. Topics examined include the impact of social media and modern communication tools on areas such as commerce, entertainment, networking and relationship building/maintenance, community action, sustainability, national security, emergency management, healthcare, citizen science, and education. Students discuss phenomena such as crowdsourcing, recommender systems, and collaboratories. To better understand the social aspects of online interaction, core behavioral concepts, including group and community formation and identification, social network theory, individual motivations, and trust, in addition to basic media theories such as social presence and media richness are discussed. Designed for IS majors, everyone must create an online community, using either off-the-shelf tools or by creating an original one.

Student Learning Outcomes:
At the end of this course, students are able to:
- Identify successful and flawed features of online communities and websites across a number of different human activities;
- Suggest improvements to these sites;
- Design strong online communities, both the web property and the structured interactions that make that community active based on solid theory; and
- Build a working model of an online community or social networking site.

Students are required to:
- Analyze dozens of popular and failed online communities, including structure, design, and interactions;
- Propose a new online community, including rationale, value proposition, target audience, interactions, monetization, and growth; and
- Design, develop, and deploy the community site. Minimally, non-IS majors must build a detailed wireframe model and deploy the basic structure using off-the-shelf tools. There are a number of packages with free trials, or low monthly rates that should make working in teams viable (e.g., $25/month).

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.
Course Grading and Requirements:

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
- 50% participation – Website Examples and Analysis, Discussions, Reflections, and Other Assignments
- 50% project - 30% Overall Group Submission and 20% Individual Contribution

There will be no quizzes, tests, exams, etc.

Required Text(s):
None. All readings available from e-reserves or are open-source on the web.

Course Outline:
Week 1 - Overview of New Media and Technology-Mediated Social Participation
Week 2 - Online Phenomena
Week 3 - Truly “Social” Applications
Week 4 - Community Applications
Week 5 - Impacts of Social Media on Commerce
Week 6 - Online and Social Media Marketing
Week 7 - Digital and Multimedia
Week 8 - Theories Underlying Adoption, Participation, and Use
Week 9 - Social Network Analysis 1
Week 10 - Social Network Analysis 2
Week 11 - Data, Web Analytics, and Informatics
Week 12 - Usability and Sociability; Site and Interaction Design 1
Week 13 - Usability and Sociability; Site and Interaction Design 2
Week 14 - Fair Use and Privacy Policies
Week 15 - Final Project Presentations
CUNY School of Professional Studies

Program: B.S. in Information Systems

Course Name and Number: IS 310 - Web Programming and Mobile App Development

Type of Course: Elective

Field of Study: Information Technology

Credits: 3 undergraduate credits

Prerequisite: IS 211

Course Description:
One of today’s fastest growing software markets is the mobile web, where portable devices interface with web applications to transact business, connect friends, and control machines. This course is designed to explore the core principles and techniques essential to building both websites and mobile applications. Interface design techniques that enhance existing websites for mobile viewing, how to incorporate markup and style sheet capabilities, and automating sites with scripting languages are covered. Specific platforms and programming techniques change over time, but the expectation is that students build working and deployable systems that may be displayed on contemporary web and mobile platforms. Security, performance, scalability, and maintainability are also discussed.

Student Learning Outcomes:
At the end of this course, students are able to:
- Employ advanced concepts in HTML programming;
- Use CSS3 on mobile device web pages;
- Code JavaScript, PHP, and MySQL; and
- Set up both Apple iOS and Android SDK, and create Apps.

Students are required to:
- Use CSS3 to style web pages;
- Build a website that works on all devices;
- Create mobile websites with new HTML5 tags and attributes; and
- Convert web apps to mobile apps.

Program Learning Outcomes Addressed by the Course:
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

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Assignments as a Percentage of Course Grade:
- Quizzes 15%
- Assignments 30%
- Midterm Exam 15%
- Final Exam 15%
- Final Project 25%

Required Text(s):

Course Outline:
Week 1 Introduction to HTML
Week 2 New multimedia tags, New HTML5 tags and attributes
Week 3 Creating CSS style sheet
Week 4 CSS3 enhancement, Using CSS3 on mobile devices
Week 5 Detecting mobile devices and HTML5 support
Week 6 Basics of JavaScript
Week 7 Using JavaScript with HTML5
Week 8 Introduction to PHP
Week 9 Introduction to MySQL
Week 10 Developing mobile friendly websites
Week 11 Building a mobile web application
Week 12 Set up the Apple SDK
Week 13 Creating iOS standalone apps
Week 14 Set up Android SDK
Week 15 Creating Android Standalone Apps

Additional Resources:

Program: B.S. in Information Systems
Course Name and Number: IS 379 - IS Special Topics
Type of Course: Elective
Field of Study: Information Systems
Credits: 3 undergraduate credits
Prerequisite: Approval of the program’s academic director.

Course Description:
This course provides the program to offer boutique short-term courses on emerging phenomena and technologies in this fast-moving industry. The expectation is that this is an advanced class that requires an appropriate student project and deliverable in line with the number of credits awarded for the course.

Student Learning Outcomes:
- Each Special Topics course includes a set of learning objectives unique to that topic.

Program Learning Outcomes Addressed by the Course:
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
Assessment and grading will be at the discretion of the faculty of each Special Topics course and based on the unique course learning objectives.

Required Text(s):
Readings and materials will be developed by the faculty of each Special Topics course and based on the unique course learning objectives.

Course Outline:
The course outline will be developed by the faculty of each Special Topics course and based on the unique course learning objectives.
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 349 - IS Independent Study
Type of Course: Elective
Field of Study: Information Systems
Credits: 1–3 undergraduate credits
Prerequisite: Approval of the program’s academic director.

Course Description:
Students have the flexibility to learn more about a topic of interest outside of the formal course setting. A subject is chosen in consultation with a faculty advisor, who acts as the student’s supervisor, and with the permission of the academic director. Requirements include the submission of a course contract describing the course of study and its specific learning objectives. Course credit is determined by the instructor, with the approval of the academic director.

Student Learning Outcomes:
Learning objectives will be identified for each unique independent study course and contained in a course contract signed by the student and faculty advisor.

Program Learning Outcomes Addressed by the Course:
Goals addressed by course will vary by topic, but is likely to address the following:
- Anayze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage, secure, analyze and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
Assessment and grading will be at the discretion of the faculty adviser based on the learning objectives agreed to in the course contract.

Required Text(s):
Readings and materials are developed jointly by the student and faculty advisor and become part of the course contract. However, the student provides his or her faculty advisor with weekly progress reports.

Course Outline:
The course outline is developed jointly by the student and faculty advisor and becomes part of the course contract.
Program: B.S. in Information Systems
Course Name and Number: IS 369 - IS Internship
Type of Course: Elective
Field of Study: Information Systems
Credits: 3 undergraduate credits
Prerequisite: Approval of the program's academic director.

Course Description:
This is an off-campus internship supervised by a staff person at the internship site, and overseen by a faculty advisor. The internship site must be approved by the program’s academic director, and the overall duration of the work must be no less than 150 hours of student work. At the start of the internship, the student and faculty advisor jointly develop specific learning objectives tailored to the nature of the internship. Over the course of the internship, students are required to submit weekly reflections. When the internship ends, students submit a final paper that illustrates the knowledge gained from the experience.

Student Learning Outcomes:
At the end of this course, students are able to:
• Perform the tasks associated with their internship with a greater level of technical competency;
• Successfully navigate a professional environment; and
• Better define their professional goals.

Students are required to:
• Complete weekly reflections/writing assignments; and
• Write a final paper that summarizes and analyzes the work undertaken over the semester.

Program Learning Outcomes Addressed by the Course:
Goals addressed by course will vary by internship type, but is likely to address the following:
• Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
• Build secure, reliable, and accurate software systems using programming and database skills;
• Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
• Assess the impact and strategic value of emerging technologies;
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IS majors must earn a grade of C or better in all IS courses to meet the program's degree requirements.

Assignments as a Percentage of Course Grade:
Assessment and grading are at the discretion of the faculty adviser based on the learning objectives identified. However, the student provides his or her faculty advisor with weekly status reports.

Required Text(s): N/A
Course Outline: N/A
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: IS 330 - Logistics and Supply Chain Management
Type of Course: Elective
Field of Study: Information Technology
Credits: 3 undergraduate credits
Prerequisite: None

Course Description:
Logistics—processes within a single firm or organization—and supply chain management (SCM)—processes and exchanges across multiple organizations are essential elements of any lean business. The course discusses the efficient and effective planning and control of product/service design and generation; raw and finished goods inventories; layout and location of offices, warehouses, and factories; distribution channels and systems; labor standards and scheduling; intermediate and long-term decision making; and fulfillment of critical customer expectations. Topics include logistics/SCM strategy and tactics; process selection; design and analysis; location selection; scheduling and sequencing; lean operating systems; quality control; facility and work design; performance measurement; simulation, queuing, and supply chain models; project, inventory, and capacity planning; and related professional software packages.

Student Learning Outcomes:
At the end of this course, students are able to:
- Identify integrated management skills for continued productivity improvement in organizations;
- Describe and model logistics as a process that links supply chain participants into integrated operations by providing the essential customer service attributes at the lowest possible total cost;
- Utilize customer relationship management as a way of accommodating better needs and requirements of individual customers;
- Describe and model inventory management processes, including the rationale for inventory; costs, and procedures for setting and monitoring appropriate inventory levels;
- Explain the benefits of procurement and manufacturing as a means of ensuring product quality;
- Identify techniques used for logistics planning, including network and operational planning;
- Identify and analyze the factors that must be considered when selecting inventory control models, modes of transportation, and operational service levels;
- Assess demand and strategy design in order to achieve maximum responsiveness to customer requirements;
- Develop and maintain customer relationships. This helps with facilitating strategic information sharing, joint planning, and integral operations;
- Execute superior and sustainable order-to-delivery performance and related essential services; and
- Model product/service development, repair, and support during the lifecycle.

Students are required to:
- Examine a number of case studies that compare and contrast logistics and SCM policies, and procedures at both large and small companies.
- Implement an SCM plan for a mock company.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Build secure, reliable, and accurate software systems using programming and database skills;
- Manage technology projects through the product (often software and data-related) development lifecycle;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.
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IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.

Assignments as a Percentage of Course Grade:
- Discussion and Case Studies 25%
- Quizzes 20%
- Final Exam 15%
- Team Project 40%

Required Text(s):

Course Outline:
Week 1 Impacts of Successful Logistics and the Technologies that Enable Operations
Week 2 Globalization and International Trade
Week 3 Supply Chain Strategies
Week 4 Logistics Service Providers
Week 5 Procurement and Outsourcing
Week 6 Inventory Management
Week 7 Warehousing and Materials Management
Week 8 Transport in Supply Chains
Week 9 Information Flows
Week 10 Logistics and Financial Management.
Week 11 Measuring and Managing Logistics Performance
Week 12 Supply Chain Vulnerability, Risk, Robustness, and Resilience
Week 13 Integration and Collaboration
Week 14 Sustainable Logistics and Supply Chain Systems; New Supply Chain Designs
Week 15 Final Exam, Project Presentation

Additional Resources:

Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013
CUNY School of Professional Studies

Program: B.S. in Information Systems
Course Name and Number: BUS 306 - Managerial Accounting
Type of Course: Elective
Field of Study: MIS Track
Credits: 3 undergraduate credits
Prerequisite: None

Course Description:
Organizations use accounting information for planning and controlling operations. Students develop a framework for measuring managerial performance through an analytical treatment of cost behavior under dynamic conditions by employing tools such as job and process costing and forecasting, operational budgeting and forecasting, activity-based costing, variable costing, cost estimation, cost-volume-profit analysis, balance sheets, cash flow, standard costing, differential costing, capital planning and projections, and variance analysis.

Student Learning Outcomes:
At the end of this course, students are able to:
- Prepare, analyze, and take action based on financial statements;
- Develop cost models for company activities using various costing methods;
- Develop pricing models;
- Create budgets and budget controls; and
- Plan for capital investments.

Students are required to:
- Submit weekly problem sets and financial statements;
- Develop pricing models for new software and technology products, e.g., flat-fee, licensing, subscriptions, software as a service;
- Identify the impact of choosing particular cost models for several different types of projects through weekly problem sets; and
- Create a complete set of budget planning documents for a large IS system rollout including capital expenditures justifying their assumptions.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Manage, secure, analyze, and use organizational data resources—always conscious of fair and ethical usage standards—to create value for key stakeholders;
- Manage technology projects through the product (often software and data-related) development lifecycle;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
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<td>B-</td>
<td>58-60</td>
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<tr>
<td>C</td>
<td>59 or below</td>
</tr>
</tbody>
</table>

IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.
Assignments as a Percentage of Course Grade:
Weekly problem sets - 35%
Final exam - 20%
Final Project - 35%
Final Project Presentation - 10%

Required Text(s):

Course Outline:
Week 1 – Overview of Accounting for Management Decisions
Week 2 – Reviewing Financial Statements
Week 3 – Budget Basics
Week 4 – Advanced Budgeting Concepts
Week 5 – Job Order and Process Costing
Week 6 – Activity Based Cost Models
Week 7 – Cost-Volume-Profit
Week 8 – Incremental Analysis
Week 9 – Overview of Pricing
Week 10 – Budget Planning
Week 11 – Budgetary Controls
Week 12 – Balanced Score Cards and Digital Dashboards
Week 13 – Capital Projects
Week 14 – Project Presentations
Week 15 – Final Exam
Program: B.S. in Information Systems
Course Name and Number: BUS 321 - Strategic Human Resource Management
Type of Course: Elective
Field of Study: MIS Track, Required Course
Credits: 3 undergraduate credits
Prerequisite: None

Course Description:
Human Resources Management (HRM) bridges policies that impact human behavior with those that drive business strategy to make the most of an organization’s human capital. HRM includes the functions of recruitment and selection, employment law, training, career development, labor relations, equal employment opportunity (EEO), labor, affirmative action, performance management, health and safety, compensation, and benefits management. Through exposure to a broad range of topics, Students are prepared to deal with a variety of issues that may be encountered in careers such as an HR manager or team leader. An overview of HR Information Systems is included.

Student Learning Outcomes:
At the end of this course, students are able to:
- Understand human resource management from a systemic, strategic perspective;
- Describe the field of human resource management and understand its relevance to managers and employees in work organizations;
- Demonstrate their understanding and competence with respect to fundamental human resource concepts;
- Grasp the global/cross-cultural issues inherent in concepts such as job analysis, human resource planning, job design, staffing, selection, appraising, compensation and benefits, training and development, and human resource regulation, health and safety, and technology;
- Provide an understanding of how human resource management has evolved over time, and the emerging strategic role that HRM plays in modern organizations;
- Analyze the extent to which business strategy and human resource strategy interact;
- Critically assess and evaluate human resource policies and practices; and
- Summarize the role of IS in the human resource function, and develop strategies for deploying off-the-shelf packages in HR departments.

Students are required to:
- Complete assigned case studies and/or supplemental work that relates concepts to real-world issues; and
- Demonstrate their currency in discussions about current events related to legal, ethical, or social issues in HR.

Program Learning Outcomes Addressed by the Course:
- Analyze, determine requirements, design, and evaluate the kind of information systems that can help achieve business goals, as well as evaluate the feasibility and optimal implementation of such systems;
- Manage, secure, analyze, and use organizational data resources--always conscious of fair and ethical usage standards--to create value for key stakeholders;
- Assess the impact and strategic value of emerging technologies;
- Apply systems thinking and design thinking skills across a broad range of industries and environments; and
- Solve problems, think critically, communicate effectively verbally and in writing, and make ethical decisions.

Course Grading and Requirements:

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
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<th>81-80</th>
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</table>

IS majors must earn a grade of C or better in all IS courses to meet the program’s degree requirements.
Assignments as a Percentage of Course Grade:
- Discussions 10%
- Case studies 20%
- Quizzes 20%
- Midterm Exam 15%
- Final Exam 15%
- Project 20%

Required Texts:
- Student should also register for McGraw Hill's Connect so they can avail of online material, including quizzes.

Course Outline:
Week 1 Course Overview
- Managing Human Resources (HR)
Week 2 Trends in HR Management
- Providing Equal Employment Opportunity
Week 3 Analyzing Work and Designing Jobs
- Planning for and Recruiting HR
Week 4 Selecting Employees and Placing Them in Jobs
- Training Employees
Week 5 Managing Employees' Performance
- Developing Employees for Future Success
Week 6 Case Study Discussion
Week 7 Separating and Retaining Employees
- Exam 1
Week 8 Establishing a Pay Structure
- Recognizing Employee Contributions
Week 9 Providing Employee Benefits; Collective Bargaining and Labor Relations
Week 10 Creating and Maintaining High Performance Organizations
Week 11 Managing Human Resources Globally
- Exam 2
Week 12 HR Workflow and HR Information Systems 1
Week 13 HR Information Systems 2
Week 14 Integrating the Course through Case Studies
Week 15 Final Exam

Additional Resources:
The following links are useful for human resource management:
- National Human Resources Association: [http://www.humanresources.org/website/c](http://www.humanresources.org/website/c)
## Table 1a: Undergraduate Program Schedule – Management Information Systems Track

- **Indicate academic calendar type:** _Semester_  _Quarter_  _Trimester_  _Other (describe)_

<table>
<thead>
<tr>
<th>TRANSFER</th>
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<th>Check course classification(s)</th>
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<td>Maj</td>
<td>New</td>
<td>Prerequisite(s)</td>
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<td>LAS</td>
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<tr>
<th>Program Totals:</th>
<th>Credits: 120</th>
<th>Liberal Arts &amp; Sciences: 39</th>
<th>Major:66</th>
<th>Elective &amp; Other:15</th>
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<td>New: new course</td>
<td>Prerequisite(s): list prerequisite(s) for the noted courses</td>
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### Table 1a: Undergraduate Program Schedule – General Information Systems Track

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<td>Course Number &amp; Title</td>
<td>Cr LAS Maj New Prerequisite(s)</td>
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<tr>
<td>GENERAL EDUCATION TRANSFER</td>
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<td>IS 320 - Systems Analysis and Design</td>
<td>3 X Yes IS 200 or BUS325 and CIS 101</td>
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<td>ELECTIVE TRANSFER</td>
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<tr>
<td>Context Course 1</td>
<td>3 X</td>
<td>Information Systems Elective 3</td>
<td>3 X Depends on course</td>
</tr>
<tr>
<td>Context Course 2</td>
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<td>Context Course 1</td>
<td>3 X Depends on course</td>
</tr>
<tr>
<td>Context Course 2</td>
<td>3 X</td>
<td>Context Course 2</td>
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<tr>
<th>Course Number &amp; Title</th>
<th>Cr LAS Maj New Prerequisite(s)</th>
<th>Course Number &amp; Title</th>
<th>Cr LAS Maj New Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUANT 201 – Quantitative Reasoning and Society</td>
<td>3 X</td>
<td>IS 350 - IS Strategy, Management, and Acquisition</td>
<td>3 X Yes IS 211, HIM 361, IS 260, IS 250, IS 320, IS 300</td>
</tr>
<tr>
<td>COM 210 – Writing at Work</td>
<td>3 X</td>
<td>Context Course 3</td>
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<tr>
<td>IS 200 - Foundations of Information Systems</td>
<td>3 X Yes None</td>
<td>Context Course 4</td>
<td>3 X Depends on course</td>
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<tr>
<td>IS 360 - Data Acquisition and Management</td>
<td>3 X Yes None</td>
<td>Information Systems or General Elective</td>
<td>3 Depends on course</td>
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<tr>
<td>IS 210 - Software Application Programming 1</td>
<td>3 X Yes None</td>
<td>Information Systems or General Elective</td>
<td>3 Depends on course</td>
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<td>Term credit total:</td>
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<td>Term credit total:</td>
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<tr>
<th>Course Number &amp; Title</th>
<th>Cr LAS Maj New Prerequisite(s)</th>
<th>Course Number &amp; Title</th>
<th>Cr LAS Maj New Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS 211 - Software Application Programming 2</td>
<td>3 X Yes IS 210</td>
<td>IS 499 - IS Capstone</td>
<td>3 X Yes Senior status and permission of the program’s academic director</td>
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<tr>
<td>IS 250 - Computer and Network Security</td>
<td>3 X IS 200 or BUS325 and CIS 101</td>
<td>Information Systems or General Elective</td>
<td>3 X Depends on course</td>
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<tr>
<td>IS 260 - Networks and Business Data</td>
<td>3 X IS 200 or BUS325 and CIS 101</td>
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<td>HIM 361 - Database Architecture and Programming</td>
<td>3 X No HIM 360 or IS 360</td>
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<tr>
<td>IS 205 - IT Infrastructure and Support</td>
<td>3 X Yes None</td>
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<th>Cr LAS Maj New Prerequisite(s)</th>
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<th>Cr LAS Maj New Prerequisite(s)</th>
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<tbody>
<tr>
<td>PROM 210 - Project Management</td>
<td>3 X No CIS 101 or IS 200</td>
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<td>3 X Depends on course</td>
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<tr>
<td>MATH 215 - Introduction to Statistics</td>
<td>3 X No None</td>
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<tr>
<td>COM 110 – Digital Literacy</td>
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<td>Information Systems or General Elective</td>
<td>3 X Depends on course</td>
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<tr>
<td>IS 300 - Enterprise Architectures and Applications</td>
<td>3 X Yes Foundations of IS or BUS325 and CIS 101</td>
<td>Information Systems or General Elective</td>
<td>3 X Depends on course</td>
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<tr>
<td>Information Systems Elective 1</td>
<td>3 X Depends on course</td>
<td>Term credit total:</td>
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Faculty teaching at the graduate level must have an earned doctorate/terminal degree or demonstrate special competence in the field. Provide information on faculty members who are full-time at the institution and who will be teaching each course in the major field or graduate program. The application addendum for professional licensure, teacher certification, or educational leadership certification programs may provide additional directions for those types of proposals.

<table>
<thead>
<tr>
<th>Faculty Member Name and Title (include and identify Program Director)</th>
<th>Program Courses to be Taught</th>
<th>Percent Time to Program</th>
<th>Highest and Other Applicable Earned Degrees &amp; Disciplines (include College/University)</th>
<th>Additional Qualifications: list related certifications/licenses; occupational experience; scholarly contributions, etc.</th>
</tr>
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<tbody>
<tr>
<td>Ira Rudowsky, Professor of Computer Science</td>
<td>Foundations of Information Systems</td>
<td>3 credits*</td>
<td>Ph.D., Computer Science, City University of New York</td>
<td>Recipient of two NSF grants aimed at increasing the number of students receiving post-secondary degrees in the computing disciplines.</td>
</tr>
<tr>
<td>Hershey Friedman, Professor of Business</td>
<td>Logistics and Supply Chain Management</td>
<td>3 credits*</td>
<td>Ph.D., Business, City University of New York</td>
<td>Over 30 years teaching statistics, operations management, corporate finance, marketing, and economics. Author of dozens of business articles.</td>
</tr>
<tr>
<td>Paul Russo, Director of Online Programs</td>
<td>• Introduction to Data Science • Social Computing • IS Capstone</td>
<td>3-6 credits*</td>
<td>Ph.D., Technology Management, NYU Polytechnic</td>
<td>Reviewer for Computer Supported Cooperative Work and Social Computing (CSCW).</td>
</tr>
<tr>
<td>Ellen Shakespeare, Academic Director, Health Information Management</td>
<td>Health Information Technology</td>
<td>3 credits*</td>
<td>M.B.A., Health Administration, University of Miami</td>
<td>A Fellow with the American Health Information Management Association (AHIMA), an honor bestowed on only 116 of its 60,000 members.</td>
</tr>
<tr>
<td>Beth Evans, Associate Professor</td>
<td>Principles of Informatics</td>
<td>3 credits*</td>
<td>M.L.S., Library and Information Studies, City University of New York</td>
<td>Designed and developed online curriculum for New York City high schools with a two-year grant from U.S. Dept. of Commerce Technology Opportunities Program</td>
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<tr>
<td>Hong Li, Associate Professor</td>
<td>Web Programming and Mobile App Development</td>
<td>3 credits*</td>
<td>Ph.D., Mathematics, University of Oklahoma</td>
<td>Five years of experience as a software developer and system analyst in numeric modeling.</td>
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<tr>
<td>Maria Binz-Scharf, Associate Professor</td>
<td>Social Computing</td>
<td>3 credits*</td>
<td>Ph.D., Management, University of St. Gallen</td>
<td>Postdoctoral work in Public Management, Harvard University</td>
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<tr>
<td>William Hampton-Sosa, Assistant Professor</td>
<td>E-Commerce for Information Systems</td>
<td>3 credits*</td>
<td>Ph.D., Business and Information Systems, City University of New York</td>
<td>Refereed articles in International Journal of Electronic Commerce and Americas Conference on Information Systems.</td>
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<tr>
<td>Viju Raghupathi, Assistant Professor</td>
<td>Strategic Human Resource Management</td>
<td>3 credits*</td>
<td>Ph.D., Business, City University of New York</td>
<td>Author of articles on corporate governance, computer-mediated group communication, and opinion leadership.</td>
</tr>
<tr>
<td>Ed Hanssen, Assistant Professor</td>
<td>IS Strategy, Management, and Acquisition</td>
<td>3 credits*</td>
<td>Doctorate of Professional Studies, Information Systems and Economics, Pace University</td>
<td>Presented on the topic of student ePortfolios at several professional conventions.</td>
</tr>
</tbody>
</table>

*The percentage of time allocated to the B.S. in Information Systems program at SPS will be dependent upon the number of credits Faculty are assigned to teach and/or if they are appointed as Consortial Faculty or Academic Community Leaders.
Table 3: Part-Time Faculty

Faculty teaching at the graduate level must have an earned doctorate/terminal degree or demonstrate special competence in the field. Provide information on part-time faculty members who will be teaching each course in the major field or graduate program. The application addendum for professional licensure, teacher certification, or educational leadership certification programs may provide additional directions for those types of proposals.

<table>
<thead>
<tr>
<th>Faculty Member Name and Title</th>
<th>Program Courses to be Taught</th>
<th>Highest and Other Applicable Earned Degrees &amp; Disciplines (include College/University)</th>
<th>Additional Qualifications: list related certifications/licenses; occupational experience; scholarly contributions, etc.</th>
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</thead>
<tbody>
<tr>
<td>Ejaz Adams, Adjunct Faculty</td>
<td>• Systems Analysis and Design</td>
<td>Master of Science, Information Systems, Pace University</td>
<td>Teaches at two institutions of higher education; is also an IT trainer developing course curriculum, and teaching technical skills.</td>
</tr>
<tr>
<td></td>
<td>• IT Infrastructure and Support</td>
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<td></td>
</tr>
<tr>
<td>Frank Cerbone, Adjunct Lecturer</td>
<td>• Networks and Business Data Communication</td>
<td>Master of Public Administration, New York University</td>
<td>Extensive experience managing a core technology department with operational support of network equipment; telecommunications planning, design, and implementation.</td>
</tr>
<tr>
<td></td>
<td>• Computer and Network Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• IT Infrastructure and Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gulustan Dogan, Adjunct Faculty</td>
<td>Discrete Mathematics and Linear Algebra</td>
<td>Ph.D., Computer Science, City University of New York</td>
<td>Software engineer; ongoing researcher in US Army Research Laboratory Project; multiple publications on using provenance in sensor networks.</td>
</tr>
<tr>
<td>Paul Gallo, Adjunct Faculty</td>
<td>Computer Forensics</td>
<td>Master of Science, Forensic Computing, John Jay College of Criminal Justice</td>
<td>Manages local and on-site forensic acquisitions and analysis of various electronic media; expert in Apple Macintosh/iPad/iPhone investigations.</td>
</tr>
<tr>
<td>Raz Godelnik, Adjunct Faculty</td>
<td>IS Capstone and Special Topics</td>
<td>MBA, Tel Aviv University</td>
<td>Deep experience in entrepreneurship and startups.</td>
</tr>
<tr>
<td>Kara Heffernan, Director, Internship Programs</td>
<td>IS Internship</td>
<td>M.B.A., City University of New York</td>
<td>Oversees IT internship programs at CUNY, which employ approximately 350 students in paid IT internships annually.</td>
</tr>
<tr>
<td>Howard Kline, Adjunct Instructor</td>
<td>• Data Acquisition and Management</td>
<td>Master of Arts, Philosophy, University of Pennsylvania</td>
<td>More than 16 years working for IBM developing and delivering technology-enabled solutions to address client needs in the areas of business process, architecture optimization, and modernization.</td>
</tr>
<tr>
<td></td>
<td>• Business Process Design and Workflow Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tassos Sarbanes, Adjunct Faculty</td>
<td>Enterprise Architectures and Applications</td>
<td>Master of Arts, Computer Science, Queens College</td>
<td>Senior database architect for multiple financial institutions.</td>
</tr>
<tr>
<td>Kevin Tucker, Executive Director, Ernesto Malave Leadership Academy</td>
<td>Universal Design and Assistive Technology</td>
<td>Ed.D. candidate in Higher Education Administration, Northeastern University</td>
<td>Project manager for CUNY Assistive Technology Services (CATS) for 19 campuses; CATS named one of the 100 “best practices” nationally by the American Association of Public Colleges and State Universities.</td>
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</table>
### Table 4: Faculty to be Hired

If faculty must be hired, specify the number and title of new positions to be established and minimum qualifications.

<table>
<thead>
<tr>
<th>Title/Rank of Position</th>
<th>No. of New Positions</th>
<th>Minimum Qualifications (including degree and discipline area)</th>
<th>F/T or P/T</th>
<th>Percent Time to Program</th>
<th>Expected Course Assignments</th>
<th>Expected Hiring Date</th>
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<tbody>
<tr>
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</table>

Additional faculty are not anticipated at this time.
### Table 5: New Resources

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<tr>
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<tbody>
<tr>
<td>Full Time Faculty</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Part Time Faculty</td>
<td>$52,000</td>
<td>$96,000</td>
<td>$116,000</td>
<td>$132,000</td>
<td>$144,000</td>
</tr>
<tr>
<td>Full Time Staff</td>
<td>$45,755</td>
<td>$47,303</td>
<td>$49,215</td>
<td>$51,126</td>
<td>$53,035</td>
</tr>
<tr>
<td>Part Time Staff</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Library (Includes Staffing)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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</tr>
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<td>Equipment</td>
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<td>$0</td>
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<td>Laboratories</td>
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<td>Supplies &amp; Expenses (OTPS)</td>
<td>$31,000</td>
<td>$41,330</td>
<td>$46,670</td>
<td>$37,020</td>
<td>$37,381</td>
</tr>
<tr>
<td>Capital Expenditures</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Other</td>
<td>$40,000</td>
<td>$41,000</td>
<td>$27,000</td>
<td>$21,000</td>
<td>$9,000</td>
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<tr>
<td><strong>Total all</strong></td>
<td><strong>$168,755</strong></td>
<td><strong>$225,633</strong></td>
<td><strong>$238,885</strong></td>
<td><strong>$241,146</strong></td>
<td><strong>$243,416</strong></td>
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[1] Itemized expenditures are located in Table 7.
### Table 6: Projected Revenue

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</thead>
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<tr>
<td>Tuition Revenue</td>
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<tr>
<td>02. From New Sources</td>
<td>$243,395</td>
<td>$460,943</td>
<td>$591,875</td>
<td>$697,477</td>
<td>$796,406</td>
</tr>
<tr>
<td>03. Total</td>
<td>$243,395</td>
<td>$460,943</td>
<td>$591,875</td>
<td>$697,477</td>
<td>$796,406</td>
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<tr>
<td>State Appropriation</td>
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<td>04. From Existing Sources</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>05. From New Sources</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>06. Total</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Other Revenue</td>
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<tr>
<td>07. From Existing Sources</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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</tr>
<tr>
<td>08. From New Sources</td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>09. Total</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Grand Total</td>
<td></td>
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<tr>
<td>10. From Existing Sources</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>11. From New Sources</td>
<td>$243,395</td>
<td>$460,943</td>
<td>$591,875</td>
<td>$697,477</td>
<td>$796,406</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$243,395</td>
<td>$460,943</td>
<td>$591,875</td>
<td>$697,477</td>
<td>$796,406</td>
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</table>

[1] Revenue details are located in Table 8.
**Table 7: Five-Year Financial Projections for Program Worksheet**

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
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<tbody>
<tr>
<td><strong>2014-2015</strong></td>
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<tr>
<td><strong>2015-2016</strong></td>
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<td><strong>2016-2017</strong></td>
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<tr>
<td><strong>2017-2018</strong></td>
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<tr>
<td><strong>2018-2019</strong></td>
<td></td>
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<tr>
<td><strong>DIRECT OPERATING EXPENSES</strong></td>
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<tr>
<td>Current Full Time Faculty Replacement Costs (list separately)</td>
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<tr>
<td>Current Full Time Faculty Overload (include Summer)</td>
<td></td>
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</tr>
<tr>
<td>New Full Time Faculty Base Salary (list separately)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Full Time Faculty Overload (include Summer)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>New Faculty Re-assigned Time (list separately)</td>
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<tr>
<td>Full Time Employee Fringe Benefits (33.0%)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total (Links to Table 5, Full-Time Faculty)</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Part Time Faculty Actual Salaries</td>
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<tr>
<td>Consortial Faculty</td>
<td>$8,000</td>
<td>$16,000</td>
<td>$16,000</td>
<td>$16,000</td>
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<tr>
<td>Adjunct Faculty</td>
<td>$44,000</td>
<td>$80,000</td>
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<td>$128,000</td>
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<tr>
<td><strong>Part Time Faculty Actual Fringe Benefits (10%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total (Links to Table 5, Part-Time Faculty)</strong></td>
<td>$52,000</td>
<td>$96,000</td>
<td>$116,000</td>
<td>$132,000</td>
<td>$144,000</td>
</tr>
<tr>
<td>Full Time Staff Base Salary (list separately)</td>
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<td></td>
<td></td>
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<tr>
<td>Associate/Assistant Professor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Director (@ 50% of time)</td>
<td>$45,755</td>
<td>$47,303</td>
<td>$49,215</td>
<td>$51,126</td>
<td>$53,035</td>
</tr>
<tr>
<td>Full Time Staff Fringe Benefits (33%)</td>
<td>$45,755</td>
<td>$47,303</td>
<td>$49,215</td>
<td>$51,126</td>
<td>$53,035</td>
</tr>
<tr>
<td><strong>Total (Links to Table 5, Full-Time Staff)</strong></td>
<td>$45,755</td>
<td>$47,303</td>
<td>$49,215</td>
<td>$51,126</td>
<td>$53,035</td>
</tr>
<tr>
<td>Part Time Staff Base Salary (list separately)</td>
<td></td>
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<tr>
<td>Graduate Assistants</td>
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<tr>
<td>Student Hourly</td>
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<td></td>
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<tr>
<td><strong>Part Time Employee Fringe Benefits (10.0%)</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Total (Links to Table 5, Part-Time Staff)</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<td>$0</td>
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<tr>
<td><strong>LIBRARY</strong></td>
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<tr>
<td>Library Resources</td>
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<tr>
<td>Library Staff Full Time (List Separately)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Full Time Staff Fringe Benefits (33%)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<tr>
<td>Library Staff Part Time (List Separately)</td>
<td></td>
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<tr>
<td>Part Time Employee Fringe Benefits (10.0%)</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<td><strong>Total (Links to Table 5, Library)</strong></td>
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<td><strong>EQUIPMENT</strong></td>
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<td>Computer Hardware</td>
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<tr>
<td>Office Furniture</td>
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<td></td>
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<tr>
<td>Other (Specify)</td>
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<tr>
<td>Computer Peripherals and Multi Media Equipment</td>
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<td><strong>Total (Links to Table 5, Equipment)</strong></td>
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<td>Laboratory Equipment</td>
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<tr>
<td>Other (list separately)</td>
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<td></td>
<td></td>
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<tr>
<td><strong>Total (Links to Table 5, Laboratories)</strong></td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
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<td><strong>SUPPLIES AND EXPENSES (OTPS)</strong></td>
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<td>Consultants</td>
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<td>Instructional Supplies</td>
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<td>Faculty Development</td>
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<td>$5,305</td>
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<td>$5,628</td>
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<td>Travel and Conferences</td>
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<td>$5,305</td>
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</tr>
<tr>
<td><strong>Total (Links to Table 5, OTPS Expenses)</strong></td>
<td>$31,000</td>
<td>$41,330</td>
<td>$46,670</td>
<td>$37,020</td>
<td>$37,381</td>
</tr>
<tr>
<td><strong>CAPITAL EXPENDITURES</strong></td>
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<td>Facility Renovations</td>
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</tr>
<tr>
<td>Classroom Equipment</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other (list separately)</td>
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</tr>
<tr>
<td><strong>Total (Links to Table 5, Capital Expenditures)</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Other</strong></td>
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</tr>
<tr>
<td>Intellectual Property</td>
<td>$30,000</td>
<td>$24,000</td>
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<td>$5,000</td>
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<td>$1,000</td>
<td>$1,000</td>
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<tr>
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<td>$40,000</td>
<td>$41,000</td>
<td>$27,000</td>
<td>$21,000</td>
<td>$9,000</td>
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</table>
Table 8: Five-Year Revenue Projections for Programs Worksheet

<table>
<thead>
<tr>
<th>Year</th>
<th>Year 1 2014-15</th>
<th>Year 2 2015-16</th>
<th>Year 3 2016-17</th>
<th>Year 4 2017-18</th>
<th>Year 5 2018-19</th>
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<tr>
<td></td>
<td>Fa 14</td>
<td>Sp 15</td>
<td>Graduates</td>
<td>Fa 15</td>
<td>Sp 16</td>
</tr>
<tr>
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Assumptions (list assumptions):
1. Tuition for 2014-15 and 2015-16 reflect the approved tuition rates. Tuition for the remaining years reflect the 2015-16 rates with 2% annual increases.
2. Enrollment increases by 2.5% each fall from the previous years and by 2% each spring from the previous spring.
3. Based on available retention data for the baccalaureate programs at CUNY, the retention rate for continuing students is as follows: 1 term = 71%, 2 terms = 57%, 3 terms = 48%, 4 terms = 35%, 5 terms = 27%, 6 terms = 21%, 7 terms = 17%, 8 terms = 13%, 9 terms = 11%. Retention rates do not include those who have graduated.
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

Application for Addition of the Distance Education Format to a Registered Program

Name of Institution: CUNY School of Professional Studies at the Graduate School and University Center

CEO or Designee: George Otte, Associate Dean of Academic Affairs

Signature: [Signature]
Date: October 10, 2013

The signature of the institutional representative indicates the institution's commitment to support the proposed distance education program.

Distance Education Contact Person: George Otte, Associate Dean of Academic Affairs

Telephone: (212) 817-7145
Fax: (212) 817-2990

E-mail: george.otte@mail.cuny.edu

Program Title: Information Systems
Degree or Certificate Awarded: B.S.

HEGIS Code: TBD

Program Code: TBD

Anticipated enrollment in distance program:
Initial: 50
Maximum by year 3: 250

Term length (in weeks) for the distance program: 15

(Is this the same as term length for classroom program?) Yes ☑ No ☐

How much "instructional time" is required per week per credit for a distance course in this program?
Answer: Instructional time is the same as traditional in-person courses – 45 hours per course.

(Do not include time spent on activities that would be done outside "class time", such as research, writing assignments, or chat rooms.)

What proportion or percentage of the program will be offered in Distance Education format?
Answer: 100%
Part A: Institution-wide Issues: Submit this part for the first Distance Education program proposed by your institution. This will be kept in a master file, and will not need to be resubmitted for each new proposed online program, unless there are changes.

Answer: This is not the first online degree program at the School of Professional Studies.

Part B: Program-Specific Issues: Submit this part for each new request to add Distance Education Format to a registered program.

I. LEARNING DESIGN

How does your institution ensure that the same academic standards and requirements are applied to the program on campus and through distance learning? If the curriculum in the Distance Education program differs from that of the on-ground program, please identify the differences.

Answer: To ensure that the standards and requirements of the proposed distance learning program are fully consistent with on-campus programs in the City University and elsewhere, (a) fulltime faculty from Information Systems programs at several CUNY colleges were involved in the program design, (b) the initial plan for the distance learning program was reviewed by heads of existing on campus programs, and (c) recommendations of national organizations/initiatives (particularly the Joint IS Curriculum Task Force of the Association for Information Systems (AIS) and the Association for Computing Machinery (ACM)) and expert practitioners were involved in the program design.

Online programs at the CUNY School of Professional Studies are designed, developed and implemented according to the New York State Education Department’s Principles and Standards of Good Practice for Distance Education. The Bachelor of Science in Information Systems will also follow best practices in online education identified by the Middle States Commission on Higher Education and the Western Cooperative for Educational Telecommunications. These organizations expect colleges and universities to demonstrate their institutional commitment to a new program. In the case of the Bachelor of Science degree in Information Systems, CUNY has proven its commitment through its insistence on academic rigor, its investment of resources in learner support, and its mandate for ongoing program evaluation and continuous improvement. As is the case for these current degrees, the Dean will oversee and implement continuous improvement through regularly scheduled assessment of student satisfaction, learning effectiveness, student outcomes, and faculty satisfaction. In addition to internal control processes, the School of Professional Studies will participate in Middle States reviews through its affiliation with the CUNY Graduate School and University Center.

Are the courses that make up the distance learning program offered in a sequence or configuration that allows timely completion of requirements?

Answer: Yes, the courses will be offered in a configuration that allows timely completion of requirements. The course offering schedule will provide all students with the opportunity to enroll full-time each semester, including summer, and to meet enrollment requirements for financial-aid eligibility. Course pre- and co-requisites also have been set to allow for uninterrupted progress through the required coursework.

How do faculty ensure that the technological tools used in the program are appropriate for the content and intended learning outcomes?

Answer: The new Bachelor of Science degree in Information Systems will use the complete suite of online education tools offered by the University. In addition to software options standard throughout the University, the online programs use other technology specific for the work done in the major, e.g., network simulations, python integrated development environment, MySQL, GitHub. Also, instructors are trained to use resources to create online mini-
lectures that can be accessed by students repeatedly and on a 24/7 basis. Decisions about “which technologies to use for which activities” were derived from previous experience in the online programs offered at the School of Professional Studies and a long history of online education at the City University of New York.

As part of the program’s overall quality control initiative, consortial faculty and other instructional staff meet each semester to evaluate individual student progress as well as macro-level program trends. Critical to these discussions are effective pedagogies and appropriate technologies. Faculty can draw on their own experiences with these technologies and from student input from end-of-term surveys. At these meetings, the group will set and refine plans for using new technology tools. Additionally, program leaders and faculty will interact regularly with software and hardware vendors and, through conference attendance and other means, keep informed about new options.

How does the program provide for appropriate and flexible interaction between faculty and students, and among students?

Answer: Regular interaction and collaboration between students and with their faculty is essential for the success of distance learning programs. To create and support these exchanges, the program will use the communication features of the University’s Blackboard course management system, including many innovative plug-ins that allow students to collaborate efficiently. Students will participate in offline discussions, coauthor team projects, keep running journals of their field experiences, create their own blogs for communicating research results, and post working visualizations. For those times that students wish to work together in small groups, they will have access to Blackboard Collaborate, an online tool that will allow students located anywhere to see each other’s computer screens, coauthor a document or spreadsheet simultaneously, and communicate both in text and, if they choose, with audio and visual connections.

How do faculty teaching online courses verify that students are doing their own work?

Answer: All students are bound by the academic policies established by the School of Professional Studies, and published in the School’s website, academic handbook, and annual bulletin. However, that does not diminish the need to develop assessment mechanisms that ensure each student leaves with the knowledge and skills expected of program graduates. Instructors routinely use the Safe Assign feature of the Blackboard course management system that compares students’ written work with a very large database of previously published work and highlights sections that have been copied without appropriate attribution. To make certain that each student is doing his or her own work, faculty routinely replace traditional quizzes and exams that test for facts and information acquisition with project-based work, which assesses practice-based competencies and has longer time-on-task requirements.

With project-based assessment, faculty often require pre-project proposals and other incremental submissions that establish a narrative pattern which, when changed midstream, makes cheating obvious. Further, the extended submission stream makes it difficult for anyone to serve as a “stand in,” as could happen with isolated remote exams. Public course discussion forums provide another device that establishes each student’s narrative voice which is hard for someone else to reproduce. When faculty do give exams, the questions are generally open-ended, so that students must synthesize the material from previous learning modules. This technique limits the chances of someone else doing the students’ work.

II. OUTCOMES AND ASSESSMENT

Distance learning programs are expected to produce the same learning outcomes as comparable classroom-based programs. How are these learning outcomes identified -- in terms of knowledge, skills, or credentials -- in course and program materials?
Answer: Each course syllabus has a clear set of competencies—identifying required subject matter mastery, contextual considerations, and practice-based skills—that students must demonstrate to successfully complete the course. In addition, program outcomes will be clearly outlined in Website content, bulletins, and other program materials. Faculty will also review these requirements at the beginning of each course. The broad learning outcomes specified for the Bachelor of Science in Information Systems program were developed in collaboration with full time faculty and current adjunct faculty who are expert practitioners.

Describe how the means chosen for assessing student learning in this program are appropriate to the content, learning design, technologies, and characteristics of the learners.

Answer: The majority of courses will emphasize complex project-based and case analysis assignments so that students will have to demonstrate a more complete understanding of the concepts and information in courses and mastery of course content. The majority of courses require presentations, either individually or in teams, that require students to present their own solutions to problems and cases. Rubrics have been developed for these assignments and will be shared with students as guides for their work and for the interpretation of feedback. This mode of assessment is a critical supplement to the fact-based measurements afforded by exams and quizzes.

III. PROGRAM EVALUATION

What process is in place to monitor and evaluate the effectiveness of the distance learning program on a regular basis?

Answer: The School of Professional Studies uses a two-part process for monitoring academic quality and tracking programmatic outcomes of its distance learning programs. The program's academic director—someone holding faculty rank—will supervise ongoing operations on a semester-by-semester basis and be responsible for addressing student concerns in all aspects of their enrollment. In addition, there will be a group of consortial faculty members who will guide the program’s content, quality of education, and student learning. The consortial faculty, along with others who teach in the program, will meet twice each semester to evaluate individual student progress as well as macro-level program trends. At these meetings, the larger group will set and refine the agenda for the year to come.

Secondly, the dean and associate deans will (and do) take a proactive role in monitoring and understanding student success and satisfaction for all programs. The School's senior leadership, academic directors, and senior staff at SPS regularly review student progress and retention metrics.

How will the evaluation results be used for continuous program improvement?

Answer: Each year, the School of Professional Studies conducts a strategic planning process, tied to the University-wide Performance Management Process (PMP), where administrative and academic directors come together to discuss the successes and challenges of the previous year and to set a course for the next. By combining the perspectives of those who teach and others who provide critical administrative support, the School is better able to create holistic solutions for the problems that students face. By bringing together representatives from across all programs, the School is sure to develop inclusive responses that better serve everyone.

During the planning process, evidence provides the backbone for future action; pass rates, retention and graduation statistics, student survey results, and a breadth of operational performance metrics will guide the planning process and future resource investments. Individual student stories add depth and quality to these metrics and are especially valuable in identifying opportunities for improvement.

How will the evaluation process assure that the program results in learning outcomes appropriate to the rigor and breadth of the college degree or certificate awarded?
**Answer:** The evaluation process includes an “academic review” each term, attended by the academic director and consortial faculty, as well as any teaching faculty who wish, to meet and discuss each student’s performance. This review of both quantitative and qualitative data provides in-depth information about students’ competency acquisition, beyond simple alpha-numeric grades. It also gives faculty the information they need to guide students in upcoming courses.

Additionally, the Senior Projects that will be required of each student will provide the basis for ongoing summative assessment of the program’s success in preparing students who have mastered each of the identified program outcomes to a satisfactory level.
Articulation Agreements
Articulation Agreement

Agreement initiated by: City University of New York, School of Professional Studies

Sending College: Queensborough Community College
  Program: Computer Information Systems
  Degree:  A.A.S.

Receiving College: CUNY School of Professional Studies (SPS)
  Department: Computer Information Systems and Analytics
  Program: Information Systems
  Degree:  B.S.

ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

This articulation agreement puts in a place a “2+2” arrangement between the programs identified above. Students who complete their A.A.S. degree at QCC (referred to as a “two-year degree”), and then continue full-time in SPS’s BSIS program, can complete their B.S. in Information Systems (general IS track) within two years. The acquired skills and knowledge gained from the culmination of courses required for the A.A.S. degree programs will be deemed to have fulfilled the General Education Pathways requirement for SPS (with the exception of the College Options courses) as well as a some major and elective courses.

Graduates of the A.A.S., Computer Information Systems degree from QCC will qualify for admission into the SPS Bachelor of Science degree in Information Systems if they have maintained a minimum overall GPA of 2.5 and are in good standing at QCC. Applicants will follow the standard admissions process, which includes completing a transfer application, SPS’s supplemental application form measuring readiness for online education, a statement of interest in the information systems program, and a personal interview.

QCC graduates will be awarded 60 transfer credits toward the bachelor’s degree based on the current (fall 2014) Information Systems curriculum. Should that curriculum change, it will be necessary to reevaluate the transfer agreement. Courses in math and English require a grade of C or better for transfer in accordance with current University policy. In addition, all courses in the major require a grade of C or better for transfer. Upon matriculation into the B.S. program in Information Systems, students will be required to complete the School of Professional Studies Online Orientation Program and must fulfill elective and major requirements specified on the following pages.

Total transfer credits granted toward the baccalaureate degree:  60.
Total additional credits required at the senior college to complete baccalaureate degree:  60.

COURSE OUTLINE AND TRANSFER REQUIREMENTS:

SENIOR COLLEGE UPPER DIVISION COURSES REMAINING FOR BACCALAUREATE DEGREE

Prerequisites and Major Courses
The interdisciplinary curriculum includes General Education courses and a 60-credit major, including concentrations, allowing students to define an area of special interest in the broader field of Information Systems. General Education requirements will incorporate the principles outlined by CUNY’s Pathways to Degree Completion initiative, which were designed to ensure transferability as well as a broad-based educational foundation.

To meet requirements, students must complete a total of 120 credits, outlined in the tables 3 - 6 below. These table list the courses required for completing the B.S. in Information Systems.
### Table 1: Queensborough Community College - A.A.S., Computer Information Systems (CIS) Requirements

<table>
<thead>
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<th>Course no.</th>
<th>Course title</th>
<th>Common core category</th>
<th>Credits</th>
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<tr>
<td>EN-101</td>
<td>English Composition I</td>
<td>I.A</td>
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<tr>
<td>EN-102</td>
<td>English Composition II</td>
<td>I.A</td>
<td>3</td>
</tr>
<tr>
<td>MA-260 or MA-321 or MA-128</td>
<td>Pre-calculus &amp; Elements of Calculus for Bus. Students or Mathematics in Contemporary Society or Calculus for Technical and Business Students</td>
<td>I.B</td>
<td>4</td>
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<tr>
<td>Laboratory science</td>
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<td>I.C</td>
<td>3-4</td>
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<tr>
<td>ECON-101 or ECON-102</td>
<td>Introduction to Macroeconomics or Introduction to Microeconomics</td>
<td>I.D</td>
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<tr>
<td>Humanities elective</td>
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<td>II.A/II.B/II.C/II.D/II.E</td>
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<tr>
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<td>II.A/II.B/II.D</td>
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### Major requirements

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<tr>
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<tr>
<td>BU-101</td>
<td>Principles of Accounting I</td>
<td>4</td>
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<tr>
<td>BU-201</td>
<td>Business Organization and Management</td>
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<tr>
<td>BU-203</td>
<td>Principles of Statistics</td>
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<tr>
<td>BU-500</td>
<td>Introduction to Microcomputer Applications</td>
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<tr>
<td>BU-509</td>
<td>Projects in Data Processing</td>
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<td>BU-520</td>
<td>Introduction to Computer Programming for Business</td>
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#### Track A

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<td>BU-502</td>
<td>COBOL Programming</td>
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<tr>
<td>BU-504</td>
<td>Systems Analysis and Design with Business Applications</td>
<td>3</td>
</tr>
<tr>
<td>BU-521</td>
<td>Business Programming with Objects</td>
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<tr>
<td>BU-522</td>
<td>Business Programming with Visual Languages</td>
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<td>BU-532</td>
<td>Microcomputer Operating Systems and Utility Software</td>
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<td><strong>Business elective</strong></td>
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#### Track B

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<td>Database Management Systems</td>
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<td>BU-530</td>
<td>Spreadsheet Applications</td>
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<td>BU-532</td>
<td>Microcomputer Operating Systems and Utility Software</td>
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<td>BU-534</td>
<td>Local Area Network Management</td>
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<td>BU-859</td>
<td>Desktop Publishing (Software)</td>
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<td><strong>Business elective</strong></td>
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<td><strong>Subtotal</strong></td>
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</table>

### Additional major requirements

One science lab. course (STEM variant in common core satisfies this requirement): choose from BI-132, BI-171; CH-102, CH-111, CH-121; ET-842; or PH-112.

| **Subtotal** | 0-1 |
| **Total credits required** | 60 |

*All students must complete two (2) WI designated classes to fulfill degree requirements.*
Table 2: School of Professional Studies – B.S. in Computer Information Systems Requirements

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<td>Life and Physical Sciences</td>
<td>3</td>
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<tr>
<td>World Cultures and Global Issues</td>
<td>3</td>
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<tr>
<td>U.S. Experience in its Diversity</td>
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<tr>
<td>Creative Expression</td>
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<td>Individual and Society</td>
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<td>Scientific World</td>
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<td>COM 110 - Digital Literacy</td>
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<td>Choice among QUAN 201, COM 210 or PLA 300</td>
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<table>
<thead>
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<td>Foundations of Information Systems</td>
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<td>Networks and Business Data Communication</td>
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<td>Introduction to Statistics</td>
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<td>Computer and Network Security</td>
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<td>Software Application Programming 1</td>
<td>3</td>
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<td>Software Application Programming 2</td>
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<tr>
<td>Data Acquisition and Management</td>
<td>3</td>
</tr>
<tr>
<td>Database Architecture and Programming</td>
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</tr>
<tr>
<td>Systems Analysis and Design</td>
<td>3</td>
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<tr>
<td>IS Strategy, Management, and Acquisition</td>
<td>3</td>
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<tr>
<td>Enterprise Architectures and Applications</td>
<td>3</td>
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<td>Project Management</td>
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<td>IS Capstone</td>
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<td><strong>Management Information Systems</strong></td>
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<td>IT Infrastructure and Support</td>
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<td>IS Electives</td>
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<td>Context Courses</td>
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<table>
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<tr>
<td>Computer Forensics</td>
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<td>Principles of Informatics</td>
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<td>Social Media</td>
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<tr>
<td>Web Programming and Mobile App Development</td>
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<tr>
<td>IS Special Topics</td>
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<td>IS Independent Study</td>
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<tr>
<td>IS Internship</td>
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</table>

**TOTAL CREDITS** | **120**

*All undergraduate courses offered through the SPS may be taken to fulfill the free elective requirement. In addition, courses from outside of the SPS are eligible as well, but must adhere to the policies and procedures for transfer credit set forth by the SPS.*
Table 3: Course Equivalencies - Microcomputer Applications Software to General Information Systems Track

<table>
<thead>
<tr>
<th>Course Type</th>
<th>QCC Course</th>
<th>QCC Credits</th>
<th>SPS Course</th>
<th>SPS Credits</th>
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<td>Introduction to Statistics</td>
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<td>Major</td>
<td>BU-201 Business Organization and Management</td>
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<td>IS Capstone</td>
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<td>Business elective</td>
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<tr>
<td>Major</td>
<td>BU-508 - Database Management Systems</td>
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<td>BU-530 - Spreadsheet Applications</td>
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<tr>
<td>Elective</td>
<td>BU-859 - Desktop Publishing (Software)</td>
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**TOTAL** | **60** | **TOTAL** | **60**
## Table 4: Course Equivalencies - Microcomputer Applications Software to Management Information Systems Track

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<th>Course Type</th>
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<th>QCC Credits</th>
<th>SPS Course</th>
<th>SPS Credits</th>
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<tr>
<td>Gen.Ed.</td>
<td>Laboratory science (I.C.)</td>
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<td>Foundations of Information Systems</td>
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<tr>
<td>Gen.Ed.</td>
<td>Social Sciences or History elective (II.A/II.B/II.D)</td>
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<td>Computer and Network Security</td>
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<tr>
<td>Major</td>
<td>BU-508 - Database Management Systems</td>
<td>3</td>
<td>IS Strategy, Management, and Acquisition</td>
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<td></td>
<td>Networks and Business Data Communication</td>
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<td>Major</td>
<td>BU-203 Principles of Statistics</td>
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<td>Project Management</td>
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<td></td>
<td>Software Application Programming 1</td>
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<tr>
<td>Major</td>
<td>BU-534 - Local Area Network Management</td>
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<td>Software Application Programming 2</td>
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<td>Systems Analysis and Design</td>
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<td>Major</td>
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<td>Introduction to Data Science</td>
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<td>BU-509 Projects in Data Processing</td>
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<td>Free Elective</td>
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<td>Major</td>
<td>BU-520 Introduction to Computer</td>
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<td>Free Elective</td>
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<td>Major</td>
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<td>Major</td>
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<td>Free Elective</td>
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<td>Free Elective</td>
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<td>BU-859 - Desktop Publishing (Software)</td>
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**TOTAL** 60 **TOTAL** 60
Table 5: Course Equivalencies – Computer Programming to General Information Systems Track

<table>
<thead>
<tr>
<th>Course Type</th>
<th>QCC Course</th>
<th>QCC Credits</th>
<th>SPS Course</th>
<th>SPS Credits</th>
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<td>ECON 101 or ECON 101 (I.D.)</td>
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<td>Context Course 1</td>
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<td>Math (I.B.)</td>
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<td>Database Architecture and Programming</td>
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<td>Enterprise Architectures and Applications</td>
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<td>BU-101 Principles of Accounting I</td>
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<td>Foundations of Information Systems</td>
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<td>IS Strategy, Management, and Acquisition</td>
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<td>Networks and Business Data Communication</td>
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<td>Software Application Programming 1</td>
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<td>BU-521 - Business Programming with Objects</td>
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<td>Software Application Programming 2</td>
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<td>Major</td>
<td>(C++)</td>
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<td>BU-504 - Systems Analysis and Design with</td>
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Table 6: Course Equivalencies – Computer Programming to Management Information Systems Track

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<th>QCC Credits</th>
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<th>SPS Credits</th>
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<td>Principles of Marketing</td>
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<td>Elective</td>
<td>BU532 Microcomputer Operating Systems</td>
<td>3</td>
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</tbody>
</table>

TOTAL 60 TOTAL 60
Procedures for evaluating the agreement, e.g., tracking the number of students who transfer under the articulation agreement and their success:

- The Academic Director and Chief Academic Officer from both programs will meet annually to review the articulation agreement. They will be expected to review student retention, progress to graduation, including transitions between prerequisite and follow-on courses, degree completion, and GPA. Modification or termination of this agreement requires the approval of the Chief Academic Officers of both institutions.

- Should the agreement be modified or terminated, the School of Professional Studies shall honor the terms granted to students who have already transferred into the B.S. in Information Systems for a period of four years or graduation, whichever comes first.

- The School of Professional Studies Registrar and the Information Systems Academic Director shall produce reports of the metrics identified above as well as those suggested in the University’s Annual Performance Management Program, which will be circulated to the following groups:

  - At SPS: Dean, Associate Dean for Academic Affairs, Information Systems Consortial Faculty, Associate Dean for Administration and Finance, Director of Student Services, Director of Career Services, Director of Admissions and Advisement, and Director of Online Programs at the School of Professional Studies

  - At QCC: Chief Academic Officer, Academic Director, Director of Student Services, Director of Career Services, and Director of Admission and Advisement.

Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisors, Websites

The School of Professional Studies and the Queensborough Community College will publicize this opportunity for students in print and web-based materials and in marketing information. Additionally both institutions will provide information to their own recruitment staff members as well as staff at the University Office of Admission Services.

Effective Date: Fall 2014

Signatures

Dr. Karen Steele, Vice President for Academic Affairs
Queensborough Community College at CUNY

Dr. Jonal Falk, Chair, Business Department
Queensborough Community College at CUNY

Dean John Mogulescu
Senior University Dean for Academic Affairs and
Dean, CUNY School of Professional Studies

Dr. George Otte
Associate Dean for Academic Affairs
CUNY School of Professional Studies
ARTICULATION AGREEMENT FORM

Sending College: Borough of Manhattan Community College (BMCC)
Department: Computer Information Systems
Program: Computer Information Systems
Degree: Associate of Science (A.A.S.)

Receiving College: CUNY School of Professional Studies (SPS)
Department: Computer Information Systems and Analytics
Program: Information Systems
Degree: B.S.

ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

Graduates of the A.A.S., Computer Information Systems or the A.A.S. Computer Network Technology degrees from Borough of Manhattan Community College (BMCC) will qualify for admission into the SPS Bachelor of Science degree in Information Systems if they have maintained a minimum overall GPA of 2.5 and are in good standing at BMCC. Applicants will follow the standard admissions process, which includes completing a transfer application, SPS’s supplemental application form measuring readiness for online education, a statement of interest in the Information Systems program, and—at the academic director’s description—a personal interview.

BMCC graduates will be awarded 60 transfer credits toward the bachelor’s degree based on the current (fall 2014) Information Systems curriculum. Should that curriculum change, it will be necessary to reevaluate the transfer agreement. Courses in math and English require a grade of C or better for transfer in accordance with current University policy. In addition, all courses in the major require a grade of C or better for transfer. Upon matriculation into the B.S. program in Information Systems, students will be required to complete the School of Professional Studies Online Orientation Program and must fulfill elective and major requirements specified on the following pages.

Total transfer credits granted toward the baccalaureate degree: 60.

Total additional credits required at the senior college to complete baccalaureate degree: 60.

Total credits required for the B.S. degree in Information Systems: 120

COURSE OUTLINE AND TRANSFER REQUIREMENTS

This articulation agreement puts in a place a “2+2” arrangement between the programs identified above. Students who complete their A.A.S. degree at BMCC (referred to as a “two-year degree”), and then continue full-time in SPS’s BSIS program, can complete their B.S. in Information Systems (general IS track) two years. The acquired skills and knowledge gained from the culmination of courses required for the A.A.S. degree programs will be deemed to have fulfilled the General Education Pathways requirement for SPS (with the exception of the College Options courses) as well as some major and elective courses. Tables 6 through 11 below provide course equivalencies for each A.A.S degree.
Credit Requirements by College

Table 1a: Computer Information Systems Transfer to BS in Information Systems, General IS Track

<table>
<thead>
<tr>
<th></th>
<th>Total Credits</th>
<th>Transferred from BMCC</th>
<th>To be taken at SPS</th>
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<tbody>
<tr>
<td>General Education</td>
<td>30</td>
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</tr>
<tr>
<td>Major</td>
<td>54</td>
<td>21</td>
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<tr>
<td>Electives</td>
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<td>15</td>
<td>21</td>
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Table 1b: Computer Information Systems Transfer to BS in Information Systems, MIS Track

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<th>BMCC</th>
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<td>Electives</td>
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Table 1c: Computer Network Technology Transfer to BS in Information Systems, General IS Track

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<th>SPS</th>
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<tbody>
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<td>Major</td>
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<td>Electives</td>
<td>36</td>
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Table 1d: Computer Network Technology Transfer to BS in Information Systems, MIS Track

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<td>Major</td>
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<td>Electives</td>
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Table 1e: Computer Science Transfer to BS in Information Systems, General IS Track

<table>
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<td>Major</td>
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<td>33</td>
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<tr>
<td>Electives</td>
<td>30</td>
<td>9</td>
<td>21</td>
</tr>
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<td><strong>TOTAL</strong></td>
<td><strong>120</strong></td>
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Table 1f: Computer Science Transfer to BS in Information Systems, MIS Track

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<tbody>
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<td>Major</td>
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<td>Electives</td>
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<tr>
<td><strong>TOTAL</strong></td>
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<td><strong>60</strong></td>
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<tr>
<td>Table 2: BMCC Computer Information Systems Curriculum</td>
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<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td></td>
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<tr>
<td><strong>Pre-Pathways</strong></td>
<td><strong>Pathways</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Education</strong></td>
<td><strong>Pathways</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 101 – English Composition I</td>
<td>English Composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 201 – English Composition II</td>
<td>ENG 101 – English Composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENG 201 – Introduction to Literature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 150 – Introduction to Statistics OR</td>
<td>Mathematical &amp; Quantitative Reasoning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 200 – Intro to Discrete Mathematics OR</td>
<td>MAT 150 – Introduction to Statistics OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 206 – Precalculus OR</td>
<td>MAT 200 – Intro to Discrete Mathematics OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 301 – Analytic Geometry &amp; Calculus I OR</td>
<td>MAT 206 – Precalculus OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAT 402 – Finite Mathematics</td>
<td>MAT 301 – Analytic Geometry &amp; Calculus I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective – Choose 1 course from 3 or 4 areas:</td>
<td>Life &amp; Physical Sciences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPE100, ART/MUS xxx, Social Science, 110-level Science, or HED 100</td>
<td>Choose 1 from: AST 110 OR PHY 110</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Choose 6 credits from the 1 or 2 of the following areas:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creative Expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>World Culture Global Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. Experience &amp; Its Diversity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Individual &amp; Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Scientific World: CSC 110 – Computer Programming I</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total General Requirements</strong></td>
<td><strong>Total Common Core</strong> 24</td>
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<tr>
<td><strong>Curriculum Requirements</strong></td>
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<td></td>
</tr>
<tr>
<td>CSC 110 – Computer Programming I</td>
<td>CSC 210 – Computer Programming II</td>
<td></td>
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<tr>
<td>CSC 210 – Computer Programming II</td>
<td>CIS 345 – Telecommunication Network I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIS 345 – Telecommunication Network I</td>
<td>CIS 440 – UNIX</td>
<td></td>
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<tr>
<td>CIS 440 – UNIX</td>
<td>CIS 395 – Database Systems I</td>
<td></td>
<td></td>
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<tr>
<td>CIS 395 – Database Systems I</td>
<td>CIS 495 – Database Systems II</td>
<td></td>
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<td>CIS 495 – Database Systems II</td>
<td>CIS 385 – Web Programming I</td>
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<td>CIS 385 – Web Programming I</td>
<td>CIS 485 – Web Programming II</td>
<td></td>
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<tr>
<td>CIS 485 – Web Programming II</td>
<td>ACC 122 – Accounting Principles I</td>
<td></td>
<td></td>
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<tr>
<td>ACC 122 – Accounting Principles I</td>
<td>BUS 104 – Introduction to Business OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BUS 200 – Business Organization and Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 104 – Introduction to Business OR</td>
<td>Electives – Choose from ACC, BUS, CIS, CSC or MMP course.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 200 – Business Organization and Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective – Choose any ACC, BUS, CIS, CSC or MMP course.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective – Choose any ACC, BUS, CIS, CSC, or MMP course.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Curriculum Requirements</strong></td>
<td>Total Curriculum Credits 36</td>
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<tr>
<td><strong>TOTAL PROGRAM CREDITS</strong></td>
<td><strong>TOTAL PROGRAM CREDITS</strong> 60</td>
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</table>

Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

119
### Table 3: BMCC Computer Network Technology Curriculum

<table>
<thead>
<tr>
<th>Pre-Pathways</th>
<th>Pathways</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Education</strong></td>
<td><strong>Curriculum Requirements</strong></td>
</tr>
</tbody>
</table>
| ENG 101 – English Composition I  
ENG 201 – English Composition II | ENG 101 – English Composition  
ENG 201 – Introduction to Literature |
| MAT 150 – Introduction to Statistics OR  
MAT 200 – Intro to Discrete Mathematics OR  
MAT 206 – Precalculus OR  
MAT 301 – Analytic Geometry & Calculus I OR  
MAT 402 – Finite Mathematics | MAT 150 – Introduction to Statistics OR  
MAT 200 – Intro to Discrete Mathematics OR  
MAT 206 – Precalculus OR  
MAT 301 – Analytic Geometry & Calculus I |
| Elective – Choose courses from the following 5 categories for a total of at least 10 credits (you may choose only one course per category): Science elective; SPE 100; Social Science elective; ART / MUS elective; HED 100 | Elective – Choose 6 credits from the 1 or 2 of the following areas: Creative Expression  
World Culture Global Issues  
U.S. Experience & Its Diversity  
Individual & Society  
**Scientific World:** CSC 110 – Computer Programming I |
| **Total General Requirements** 20 | **Total Common Core** 24 |
| **Curriculum Requirements** | |
| CIS 155 Computer Hardware | CIS 155 Computer Hardware 4 |
| CIS 255 Computer Software | CIS 255 Computer Software 4 |
| CIS 345 Telecommunication Networks I | CIS 345 Telecommunication Networks I 4 |
| CIS 445 Telecommunications Networks II / LAN | CIS 445 Telecommunications Networks II / LAN 4 |
| CIS 440 UNIX | CIS 440 UNIX 3 |
| CIS 455 Network Security | CIS 455 Network Security 4 |
| ACC 122 Accounting Principles I | ACC 122 Accounting Principles I 4 |
| ACC 222 Accounting Principles II OR CSC 110 Computer Programming I | BUS 104 Introduction to Business 3 |
| BUS 104 Introduction to Business | Elective – CIS 395 Database Systems I 3 |
| Elective Any CSC, CIS, MMP, ACC or BUS course. | Elective - Any CSC, CIS, MMP, ACC or BUS course or may elect to have an internship experience by taking both CED 201. Career Planning and CED 315 CIS Internship. CED 201 is the pre-requisite for CED 315. 3-4 |
| Elective - Any CSC, CIS, MMP, ACC or BUS course or may elect to have an internship experience by taking both CED 201. Career Planning and CED 315 CIS Internship. CED 201 is the pre-requisite for CED 315. 3-4 |
| **Total Curriculum Requirements** 40-42 | **Total Curriculum Requirements** 36 |
| **TOTAL PROGRAM CREDITS** 60 | **TOTAL PROGRAM CREDITS** 60 |
Proposal to Establish a Bachelor of Science in Information Systems  
CUNY School of Professional Studies  
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013  
Approved by the School of Professional Studies Governing Council, October 10, 2013

### Table 4: BMCC Computer Science Curriculum

<table>
<thead>
<tr>
<th>Pre-Pathways</th>
<th>Pathways</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Education</strong></td>
<td><strong>Pathways</strong></td>
</tr>
</tbody>
</table>
| ENG 101 – English Composition I  
ENG 201 – English Composition II | 6 | English Composition  
ENG 101 – English Composition  
ENG 201 – Introduction to Literature |
| Discrete Mathematics  
Precalculus | 8 | Mathematical & Quantitative Reasoning  
MAT 150 – Introduction to Statistics OR  
MAT 200 – Intro to Discrete Mathematics OR  
MAT 206 – Precalculus OR  
MAT 301 – Analytic Geometry & Calculus I |
| MAT 301 Analytic Geometry and Calculus I | 4 | MAT 301 Analytic Geometry and Calculus I |
| MAT 302 Analytic Geometry and Calculus II | 4 | MAT 302 Analytic Geometry and Calculus II |
| PSY 215 – University Physics I  
PSY 225 – University Physics II | 8 | PSY 215 – University Physics I |
| Music or Art | 1 | Music Course |
| Social Science | 3 | Choose 6 credits from the 1 or 2 of the following areas: Creative Expression; World Culture Global Issues; U.S. Experience & Its Diversity; Individual & Society |
| SPE 100 Fundamentals of Speech | 3 | Scientific World - CSC 110 – Computer Programming I |
| **Total General Requirements** | 37 | Total Common Core 38 |
| **Curriculum Requirements** | **Total Curriculum Requirements** |
| CIS 110 Computer Programming I | 4 | CSC 210 Computer Programming II |
| CSC 210 Computer Programming II | 4 | CSC 230 Discrete Structure |
| CSC 230 Discrete Structure | 3 | CSC 330 Data Structure I |
| CSC 330 Data Structure I | 3 | CSC 430 Data Structure II |
| CSC 430 Data Structure II | 3 | CSC 310 Assembler Language and Architecture |
| CSC 310 Assembler Language and Architecture | 3 | CSC 410 Assembler Language and Architecture II |
| CSC 410 Assembler Language and Architecture II | 3 | (Elective)CIS 395 Database Systems I |
| **Total Curriculum Requirements** | 23 | **Total Curriculum Requirements** 22 |
| **TOTAL PROGRAM CREDITS** | 60 | **TOTAL PROGRAM CREDITS** 60 |
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

Table 5: School of Professional Studies – B.S. in Computer Information Systems Requirements

<table>
<thead>
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<th>GENERAL EDUCATION</th>
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<td>English Composition</td>
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<tr>
<td>Mathematical and Quantitative Reasoning</td>
<td>3</td>
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<tr>
<td>Life and Physical Sciences</td>
<td>3</td>
</tr>
<tr>
<td>World Cultures and Global Issues</td>
<td>3</td>
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<tr>
<td>U.S. Experience in its Diversity</td>
<td>3</td>
</tr>
<tr>
<td>Creative Expression</td>
<td>3</td>
</tr>
<tr>
<td>Individual and Society</td>
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<tr>
<td>Scientific World</td>
<td>3</td>
</tr>
<tr>
<td>TBD by student</td>
<td>3</td>
</tr>
<tr>
<td>COM 110 - Digital Literacy</td>
<td>3</td>
</tr>
<tr>
<td>Choice among QUAN 201, COM 210 or PLA 300</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>REQUIRED MAJOR COURSES</th>
<th>39</th>
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<tbody>
<tr>
<td>Foundations of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>Networks and Business Data Communication</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Computer and Network Security</td>
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</tr>
<tr>
<td>Software Application Programming 1</td>
<td>3</td>
</tr>
<tr>
<td>Software Application Programming 2</td>
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</tr>
<tr>
<td>Data Acquisition and Management</td>
<td>3</td>
</tr>
<tr>
<td>Database Architecture and Programming</td>
<td>3</td>
</tr>
<tr>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>IS Strategy, Management, and Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>Enterprise Architectures and Applications</td>
<td>3</td>
</tr>
<tr>
<td>Project Management</td>
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<tr>
<td>IS Capstone</td>
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</table>

<table>
<thead>
<tr>
<th>TRACK REQUIREMENT - Select either GIS or MIS</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information Systems</strong></td>
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</tr>
<tr>
<td>IT Infrastructure and Support</td>
<td>3</td>
</tr>
<tr>
<td>IS Electives</td>
<td>9</td>
</tr>
<tr>
<td>Context Courses</td>
<td>12</td>
</tr>
<tr>
<td><strong>Management Information Systems</strong></td>
<td></td>
</tr>
<tr>
<td>Business Process Design and Workflow Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Introduction to Data Science</td>
<td>3</td>
</tr>
<tr>
<td>Discrete Mathematics and Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>E-Commerce for Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Logistics and Supply Chain Management</td>
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<tr>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Strategic Human Resource Management</td>
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</table>

<table>
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<td>Computer Forensics</td>
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<tr>
<td>Geographic Information Systems</td>
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<tr>
<td>Health Information Management Systems</td>
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</tr>
<tr>
<td>Human-Computer Interaction</td>
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</tr>
<tr>
<td>IT Infrastructure and Support</td>
<td>3</td>
</tr>
<tr>
<td>Principles of Informatics</td>
<td>3</td>
</tr>
<tr>
<td>Social Media</td>
<td>3</td>
</tr>
<tr>
<td>Universal Design and Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>Web Programming and Mobile App Development</td>
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<tr>
<td>IS Special Topics</td>
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<tr>
<td>IS Independent Study</td>
<td>1-3</td>
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<tr>
<td>IS Internship</td>
<td>1-3</td>
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</table>

TOTAL CREDITS 120

*All undergraduate courses offered through the SPS may be taken to fulfill the free elective requirement. In addition, courses from outside of the SPS are eligible as well, but must adhere to the policies and procedures for transfer credit set forth by the SPS.
### Table 6: Course Equivalencies - Computer Information Systems to Management Information Systems Track

<table>
<thead>
<tr>
<th>Course Type</th>
<th>BMCC Course</th>
<th>BMCC Credits</th>
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<th>SPS Credits</th>
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<td>Gen. Ed.</td>
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<td>Networks and Business Data Communication</td>
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<td>Database Architecture and Programming</td>
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<td>Major</td>
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<td>Introduction to Statistics</td>
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<td>CIS 440 – UNIX</td>
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<th>SPS Credits</th>
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<td>Networks and Business Data Communication</td>
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<td>Data Acquisition and Management</td>
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**TOTAL 60**

Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

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### Table 8: Course Equivalencies - Computer Network Technology to Management Information Systems Track

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<th>Course Type</th>
<th>BMCC Course</th>
<th>BMCC Credits</th>
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<td>Gen. Ed.</td>
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<td>College Option Courses</td>
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<td>Data Acquisition and Management</td>
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<td>Networks and Business Data Communication</td>
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<td>Computer and Network Security</td>
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<td>Discrete Mathematics and Linear Algebra</td>
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<td>CIS 255 Computer Software</td>
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<td>CIS 440 UNIX</td>
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**TOTAL** 60

**TOTAL** 60
### Table 9: Course Equivalencies - Computer Network Technology to General Information Systems Track

<table>
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<th>Course Type</th>
<th>BMCC Course</th>
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<td>Data Acquisition and Management</td>
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<td>Major</td>
<td>ACC 122 Accounting Principles I</td>
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<td>Context Course</td>
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<td>BUS 104 Introduction to Business OR BUS 200 Business Organization and Management</td>
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<td>Context Course</td>
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<tr>
<td>Elective</td>
<td>Any CSC, CIS, MMP, ACC or BUS course or may elect to have an internship experience by taking both CED 201, Career Planning and CED 315 CIS Internship.</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL 60**

**TOTAL 60**

*Based CIS 155 plus the sum of student experience in the BMCC CNT track, we will grant credit for the IT Infrastructure and support course.*
### Table 10: Course Equivalencies - Computer Science to Management Information Systems Track

<table>
<thead>
<tr>
<th>Course Type</th>
<th>BMCC Course</th>
<th>BMCC Credits</th>
<th>SPS Course</th>
<th>SPS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Ed.</td>
<td>English</td>
<td>6</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Life and Physical Sciences</td>
<td>4</td>
<td>Life and Physical Sciences</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>MAT 301 Analytic Geometry and Calculus I</td>
<td>4</td>
<td>MAT 301 Analytic Geometry and Calculus I</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>MAT 302 Analytic Geometry and Calculus II</td>
<td>4</td>
<td>MAT 302 Analytic Geometry and Calculus II</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Mathematical and Quantitative Reasoning</td>
<td>4</td>
<td>Mathematical and Quantitative Reasoning</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Music Course</td>
<td>2</td>
<td>Music Course</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>To be taken at SPS</td>
<td>College Option Courses</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>PSY 215 University Physics I</td>
<td>4</td>
<td>PSY 215 University Physics I</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>World Cultures and Global Issues: Creative Expression; U.S. Experience and Its Diversity; Individual and Society</td>
<td>6</td>
<td>World Cultures and Global Issues: Creative Expression; U.S. Experience and Its Diversity; Individual and Society</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Business Process Design and Workflow Analysis</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>(Elective) CIS 395 Database Systems I</td>
<td>3</td>
<td>Data Acquisition and Management</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Discrete Mathematics and Linear Algebra</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>E-Commerce for Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Enterprise Architectures and Applications</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Foundations of Information Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Introduction to Data Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Introduction to Statistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>IS Capstone</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>IS Strategy, Management, and Acquisition</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Logistics and Supply Chain Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Managerial Accounting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Networks and Business Data Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Principles of Marketing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Project Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>CSC 210 Computer Programming II</td>
<td>4</td>
<td>Software Application Programming 2</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Strategic Human Resource Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td>Systems Analysis and Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 310 Assembler Language and Architecture</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 330 Data Structure I</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 410 Assembler Language and Architecture II</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 430 Data Structure II</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 230 Discrete Structure</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>None</td>
<td>6</td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL 60**
### Table 11: Course Equivalencies - Computer Science to General Information Systems Track

<table>
<thead>
<tr>
<th>Course Type</th>
<th>BMCC Course</th>
<th>BMCC Credits</th>
<th>SPS Course</th>
<th>SPS Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen. Ed.</td>
<td>English</td>
<td>6</td>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Life and Physical Sciences</td>
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<td>Life and Physical Sciences</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>MAT 301 Analytic Geometry and Calculus I</td>
<td>4</td>
<td>MAT 301 Analytic Geometry and Calculus I</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>MAT 302 Analytic Geometry and Calculus II</td>
<td>4</td>
<td>MAT 302 Analytic Geometry and Calculus II</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Mathematical and Quantitative Reasoning</td>
<td>4</td>
<td>Mathematical and Quantitative Reasoning</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>Music Course</td>
<td>2</td>
<td>Music Course</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>To be taken at SPS</td>
<td></td>
<td>College Option Courses</td>
<td>6</td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>PSY 215 University Physics I</td>
<td>4</td>
<td>PSY 215 University Physics I</td>
<td></td>
</tr>
<tr>
<td>Gen. Ed.</td>
<td>World Cultures and Global Issues; Creative Expression; U.S. Experience and Its Diversity; Individual and Society</td>
<td>6</td>
<td>World Cultures and Global Issues; Creative Expression; U.S. Experience and Its Diversity; Individual and Society</td>
<td></td>
</tr>
<tr>
<td>Major (Elective)</td>
<td>CIS 395 Database Systems I</td>
<td>3</td>
<td>Data Acquisition and Management</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>CSC 210 Computer Programming II</td>
<td>4</td>
<td>Software Application Programming 2</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>CSC 330 Data Structure I</td>
<td>3</td>
<td>Context Course</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>CSC 430 Data Structure II</td>
<td>3</td>
<td>Context Course</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Context Course</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Context Course</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Discrete Mathematics and Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Enterprise Architectures and Applications</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Foundations of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>IS Capstone</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>IS Strategy, Management, and Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>IT Infrastructure and Support</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Networks and Business Data Communication</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>Major</td>
<td>To be taken at SPS</td>
<td></td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>To be taken at SPS</td>
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<td>Elective</td>
<td>18</td>
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<tr>
<td>Elective</td>
<td>CSC 230 Discrete Structure</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 310 Assembler Language and Architecture</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>CSC 410 Assembler Language and Architecture II</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL 60**
ARTICULATION AGREEMENT FOLLOW-UP PROCEDURES

Procedures for evaluating the agreement, e.g., tracking the number of students who transfer under the articulation agreement and their success:

- The Academic Director and Chief Academic Officer from both programs will meet annually to review the articulation agreement. They will be expected to review student retention, progress to graduation, including transitions between prerequisite and follow-on courses, degree completion, and GPA. Modification or termination of this agreement requires the approval of the Chief Academic Officers of both institutions.

- Should the agreement be modified or terminated, the School of Professional Studies shall honor the terms granted to students who have already transferred into the B.S. in Information Systems for a period of four years or graduation, whichever comes first.

- The School of Professional Studies Registrar and the Information Systems Academic Director shall produce reports of the metrics identified above as well as those suggested in the University’s Annual Performance Management Program, which will be circulated to the following groups:
  
  - **At SPS:** Dean, Associate Dean for Academic Affairs, Information Systems Consortial Faculty, Associate Dean for Administration and Finance, Director of Student Services, Director of Career Services, Director of Admissions and Advisement, and Director of Online Programs at the School of Professional Studies
  
  - **At BMCC:** Chief Academic Officer, Academic Director, Director of Student Services, Director of Career Services, and Director of Admission and Advisement.

**Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisors, Websites**

The School of Professional Studies and the Borough of Manhattan Community College will publicize this opportunity for students in print and web-based materials and in marketing information. Additionally both institutions will provide information to their own recruitment staff members as well as staff at the University Office of Admission Services.

**Effective Date:** Fall 2014

**Signatures**

*Proposal to Establish a Bachelor of Science in Information Systems*

CUNY School of Professional Studies

Approved by the School of Professional Studies Curriculum Committee, September 13, 2013

Approved by the School of Professional Studies Governing Council, October 10, 2013
Letters of Support
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

John Mogulescu
Senior University Dean for Academic Affairs and Dean of the School of Professional Studies
205 East 42nd Street, 9th Floor
New York, NY 10017

Dear Dean Mogulescu,

I’m writing to support the establishment of a new Bachelor of Science (B.S.) Degree in Information Systems at the CUNY School of Professional Studies. As the CUNY Intern Program Manager here at Management Information Systems, Human Resources Administration (HRA), I am happy to hear that CUNY is proposing developing a new information systems degree, especially one that attempts to provide students with a solid foundation of core technical and business skills, combined with the flexibility to tailor the degree to a student’s interests. The New York City Human Resources Administration (HRA) has worked with CUNY for over a decade, providing paid IT internships to over 1,200 CUNY students with an information technology background, and some of the best students, about 10 percent, have gone on to be hired by the agency on a permanent basis.

Over the years, HRA has supported many CUNY interns working on degrees in computer information systems and they have always been capable and well-prepared. Though I am not an educator, the curriculum appears forward looking and should do a good job of preparing students to understand how to harness the power of technology within many organizations, including HRA.

The Human Resources Administration looks forward to a new cohort of students from the CUNY School of Professional Studies being available to bring their skills and ideas to our organization, and to providing them with a hands-on experience that will enhance their resumes and improve their job prospects.

Best of luck in getting your degree program approved.

Sincerely,

Hal Shoenfield
CUNY Intern Program Manager
Management Information Systems
Human Resources Administration
John Mogulescu
Senior University Dean for Academic Affairs and
Dean of the School of Professional Studies
205 East 42nd Street, 9th Floor
New York, New York 10017

Dear Dean Mogulescu:

I write to you in support of the CUNY’s online Bachelor of Science in Information Systems (IS) scheduled to start in fall 2014. The degree offers a flexible, but well-thought-out curriculum that provides students with a solid core that is consistent with recommendations by the Association for Computing Machinery, but by some standards exceeds the programming and data management requirements of typical IS programs. Expertise in programming and data are critical in today’s technology job market. Beyond the core, the program allows students to choose up to four technology electives and four non-IS contextual courses so that they can tailor their studies. Many of the electives are on the leading edge of IS. For example, social computing, data science, and health information technology are still in their nascent stages and are often taught at the graduate level. Students who complete CUNY’s program should fare well in the future as well.

In my opinion, the faculty has reached the right balance of theory and practice in their courses. We now see in the IS world that large employers such as Google require applicants to demonstrate their abilities with hands-on exercises during the interview process. The project and simulation requirements for many of the courses should give your students an advantage over other job seekers. Likewise, allowing for internships and a capstone project should better position graduates for employment.

The proposal identifies a diverse group of faculty to teach in the program. This breadth of expertise as well as their individual scholarship and experience should serve the students well. In addition, it is notable that this group brings both research and practitioner experience.

The entry requirements for students seem appropriate. Requiring applicants to demonstrate clear interest and experience with technology as well as making an interview part of the admissions process should help to identify fully committed students who are likely to complete their degree. Further, building up student professional networks by connecting them with practitioners and employers through networking events, meetups, and internships should all have a strong positive impact on graduation rates.
As an alternative to immediate employment, I believe that the CUNY BS in Information Systems will also prepare its students for graduate work. For example, graduates interested in the business of technology, could consider NYU Poly's MS in Management of Technology.

If you have additional questions or require more information, please do not hesitate to let me know.

Sincerely,

[Signature]

Oded Nov, Ph.D.
Assistant Professor
Technology Management and Innovation
July 27, 2013

John Mogulescu
Senior University Dean for Academic Affairs and Dean of the School of Professional Studies
205 East 42nd Street, 9th Floor
New York, NY 10017

Dear Dean Mogulescu,

I’m writing in support of the establishment of a new Bachelor of Science (B.S.) Degree in Information Systems at the CUNY School of Professional Studies. As the Finance Director in the Department of Education’s Division of Instructional & Information Technology unit, I am happy to hear that CUNY is developing a new information systems degree, especially one that attempts to provide students with a solid foundation of core technical and business skills, combined with the flexibility to tailor the degree to a student’s interests. The New York City Department of Education (DOE) has worked with CUNY for many years, providing paid IT internships to hundreds of CUNY students who have a computing background, and some of the best students have gone on to be hired by the DOE, working either for the Central Office or within its schools.

Over the years, the DOE has supported many interns working on degrees at CUNY in information systems and computer information systems and they have always been capable and well-prepared. Though I am not an educator, the curriculum appears forward-looking and should do a good job of preparing students to understand how to harness the power of technology within an organization, including organizations like the Department of Education.

The DOE looks forward to a new cohort of students from the CUNY School of Professional Studies being available to bring their skills and ideas to our organization, and to providing them with a hands-on experience that will build their resume and improve their job prospects after they graduate.

Best of luck in getting your degree approved.

Sincerely,

Louis C. Yeostros
Finance Director
Division of Instructional & Information Technology
NYC Department of Education
Faculty Curriculum Vitae

This section contains the first two pages of the Curriculum Vitae for the following faculty:

- Ejaz Adams
- Maria Binz-Scharf
- Frank Cerbone
- Gulustan Dogan
- Beth Evans
- Hershey Friedman
- Paul Gallo
- Raz Godelnik
- William Hampton-Sosa
- Edward Hanssen
- Kara Heffernan
- Howard Kline
- Hong Li
- Viju Raghupathi
- Ira Rudowsky
- Paul Russo
- Tassos Sarbanes
- Ellen Shakespeare
- Kevin Tucker
- Don Wei
SUMMARY:
Highly motivated technology professional, experienced to perform software training, as well as assisting Technical Services.

Creative and self-motivated with innovative ideas and concepts for increasing the transference of learning from the classroom to the job and in motivating employees

TEACHING EXPERIENCE

New York City College of Technology – New York
Adjunct Professor 2010 – Current
Demonstrated proficiency in instructing & facilitating the meaningful learning of course competencies & proactively supporting all facets of the learning environment.
Provided education through learning-centered instruction, encouraged a culture of learning that values mutual responsibility and respect.

COURSE TAUGHT:
- CST1215 Operating Systems Fundamentals
- CST1100 Introduction to Computer Systems
- CIS100 Introduction to Computer Application
- CIS155 Computer Hardware
- CIS255 Computer Software

The Graduate Center, CUNY
IT Trainer (Consultant) 2011 – Current
- Developed course curriculum and assist students with the technical skills required to Advanced Windows XP/7 Support Training Class on behalf of the CUNY Institute for Software Design & Development.
- The curriculum is design to fulfill the requirements of A+ certification exam.
- Topics includes Installations/upgrades - hardware, software, operating systems and Peripherals.
- Remote login setup, Port forwarding, Dual boot setup, BIOS configuration, Backup strategies, and virtualization.
- Microsoft Office configuration, support and troubleshooting

DeVry University – New York
Visiting Professor 2006 – Current
Undergraduate information technology courses with an emphasis on Technology. Ability to incorporate technology into the curriculum, and the willingness to use teaching/learning tools for effective learning outcomes
Skilled in designing instructional workbook materials, conducting classroom and web-based training for customers, using software applications such as Web Ex, ilab, myitlab, e-college, simnet, testout, and astound Presentation to develop and conduct training, and providing training to students and staff

COURSES TAUGHT:
- COMP129 PC Hardware and Software with Lab
- CIS206 Architecture and Operating Systems with Lab
• BUSN115 Introduction to Business and Technology
• BIS230 Network Principles with Lab
• CIS246 Networking, Connectivity with Lab
• COMP100 Computer Applications for Business with Lab utilizing myitlab.
• NETW471 Advanced Topics in Networking

CURRICULUM DEVELOPMENT EXPERIENCE
• Constructed course content from curriculum guides developed for each course that is in alignment with specific Terminal Course Objectives. The Terminal Course Objectives (TCOs) define the learning objectives that the student will be required to comprehend and demonstrate by course completion
• Defined the sources of learning needs assessment crucial to a course development curriculum
• Distinguished among the different purposes of orientation, On-Site, online, and in-class training
• Examined training content, addressed the order and the method of delivery. This allowed to take an existing curriculum and adjust it to meet the needs of students different from the one it originally addressed
• Selected training methods that would best communicate the training content to students and training aids most likely to enhance the learning. Various types of training methods and aids were employed:
  i. Computer-assisted training, distance learning (e-college, ilab, Myitlab, SimLab)
  ii. Overhead projector, prepared PowerPoint presentations, Camtasia Studio screen recorder to create videos that train, students to demonstrate a process, concept, or idea.
  iii. Traditional, in class lecture, brainstorming, use of white board etc.

PROFESSIONAL EXPERIENCE:

Proflex Services
Desktop Support Manager/Owner 2006–2011
• Responsible for guiding the Technical Support team members
• Hired, motivated, developed and retained quality personnel by creating and maintaining positive work environment.
• Collaborated and consulted with end users regarding new technologies and deployment strategies to ensure their ever-changing requirements and priorities were being met.
• Supervised the day to day Technical Support operations. This includes working with clients to determine support needs, scheduling, coverage support, interviewing potential help desk candidates, working with subcontractors, performance reviews of the help desk staff, etc.
• Operate effectively with little or no supervision, experienced with team-building exercises. Skilled in managing difficult people.
• Worked with staff and end-users to assure accurate definition of technical requirements, job scopes, staffing needs and fulfillment of stipulated projects

Thor Equities, New York
Desktop Support Manager 2003–2006
• Implemented and troubleshoot systems to ensure functional and business objectives are met
• Documented and maintained a comprehensive technical library of system configurations and supporting documentation
• Regularly monitored incidents, status, and speed of resolution of enquiries and problems; is proactive in devising improvements and recommending changes to systems, products, or services
• Oversight of the sourcing contract and establishment of metrics to ensure a high level of customer satisfaction
Maria Christina Binz-Scharf

(i) Professional Preparation
Undergraduate Institution(s)
Università Commerciale L. Bocconi, Business Administration, BA/MA, 1996

Graduate Institution(s)
University of St. Gallen, Management, PhD, 2003

Postdoctoral Institution(s)
Harvard University, Public Management, 2004

(ii) Appointments
Visiting Researcher, Palo Alto Research Center, 2011-2012
Research Fellow, Colin Powell Center for Policy Studies. 2006-Present
Associate Professor, Department of Economics and Business, City College of New York, 2009-Present
Assistant Professor of Management, Department of Economics, The City College of New York, 2004-2009

(iii) Publications
(a) Closely Related to the Proposed Project


(b) Other Significant Publications


(iv) Synergistic Activities
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013
PI, NSF VOSS grant on new generations of scientific knowledge creation in collaboratories (#0943203)

PI, internal study on work practices of scientists at CCNY, commissioned by the Dean of Science. Results of the study were used to improve knowledge sharing among faculty and between faculty and staff.

Associate Editor, Academy of Management, Organizational Communication and Information Systems Division, 2007-present

Member of the CCNY Women’s Studies Executive Committee, 2004-2007

(v) Collaborators & Other Affiliations
(a) Collaborators or Co-editors
Karen Block, City College of New York; Carma Bylund, Memorial Sloan Kettering Cancer Center; Irina Gladkova, City College of New York; Jason Greenberg, New York University; Michael Grossberg, City College of New York; Yuval Kalish, Tel Aviv University; David Lazer, Harvard University and Northeastern University; Viktor Mayer-Schoenberger, Oxford University; Ines Mergel, Syracuse University; Greta Nasi, Bocconi University; Leslie Paik, City College of New York; Gokce Sargut, Governors State University; Alex Turrini, Bocconi University; Emmanuelle Vaast, McGill University; Elisa Weiss, Albert Einstein College of Medicine

(b) Graduate and Postdoctoral Advisors
Dissertation chair: Kuno Schedler (University of St. Gallen)
Postdoctoral advisor: David Lazer (Harvard University and Northeastern University)

(c) Thesis Advisor and Postgraduate-Scholar Sponsor
Victoria Hill, PhD (Carnegie Mellon University)
Resume of Frank S. Cerbone
4 Park View Lane
Lake Grove, N.Y. 11755
Email: fcerbone99@aol.com
Phone: (631)738-0265
Mobile: (917)453-1306

BUSINESS EXPERIENCE

Director – PC & Network
The New York Times Corporation – NYTCO Technology Department
September 2002 to current position

Jobs held:

LAN and WAN operations
- Developed departmental strategies for the operational support of core network equipment and technology in support of short and long term high level corporate goals and objectives
- Managed and developed a core technology department and established operational policies and procedures governing support for the mission critical information system objectives of the NY Times Corporation
- Led a team of technology professionals in the provisioning of converged technology services to the end user community.
- Responsible for supporting end user help desk operations related to networking issues
- Strategically planned the staffing needs of the department and provided leadership, guidance, and mentoring in support of staff development.
- Assisted in research and development efforts for the selection of new networking technology in support of corporate LAN and WAN operations.
- Developed operational processes for integration testing with internal systems as well as SOX compliance.
- Supported mission critical business operations of the NY Times e-commerce web sites such as PeopleSoft, Advertising Portal, Home Delivery systems, SAP, and Business to Business systems.
- Interfaced with senior management team regarding corporate-wide information system initiatives.
- Developed department strategy for acquisition of firewall, load balancers, & networking hardware & software.
- Provided cost effective management of all networking hardware and software assets
- Managed all activities related to contract negotiations with both equipment and service providers
- Responsible for developing the annual expense and capital budget for network operations
- Financial responsibilities include monthly forecasting and prioritization of capital spend.

Telecommunications
- Responsible for all telecommunications planning, design, implementation, and operations for the NY Times
- Directed a core staff of individuals tasked with delivery of end user customer service and support functions
- Responsible for staff development and performance management tracking
- Provided effective management oversight for the telecom help desk function and trouble ticket system
- Developed departmental strategy governing the research and implementation of products and services in support of critical business functions and the core mission of the organization.
- Led project teams in the planning and implementation of new or upgraded telecom systems
- Provide management and support for core telecom systems including call servers, messaging, video, multimedia and call center applications
- Managed the operational performance of the converged IP based infrastructure to ensure maximum uptime
- Developed and enhanced tools for the effective management of the voice infrastructure
- Hands on technical experience with computer and communications technology including application servers, call servers and media gateways.
- Ensure effective cost management governing all telecommunications spending costs.
- Managed all activities related to contract negotiations with both equipment and service providers.
- Financial responsibilities included preparing the annual telecom budget, monthly forecasting, and prioritization of capital spend.
Senior Manager
Arthur Andersen LLP - Metro Technology Solutions Department
March 1995 to Sept 2002

Position responsibilities:
Project Manager - New Data Center Build-Out
- Lead project technologist for the corporate headquarters relocation to a new 48 story building in NYC
- Responsible for designing & developing information system requirements for a new 4,000 square foot data center
- Designed the specific technology requirements (network, servers, firewalls, storage) for the new data center
- Develop RFP document for vendors which outlined comprehensive data and voice requirements for new office space
- Managed a host of consultants and project leaders in planning the logistics of the data center relocation
- Developed and managed a technology capital budget of 25 million dollars for the equipment required for the new space
- Developed the plan for a high-speed data/voice ATM based SONET ring network for the new office building

Telecommunications
- Managed all aspects of corporate voice and data communications including planning, operations, and implementation of network based services
- Managed the implementation of network infrastructure equipment including wiring, hubs, routers, and servers for all metro NY branch offices
- Responsible for managing the global technology NE region telecommunications division (includes 12 offices)
- Managed the computer asset management department (includes a staff of 12 people)
- Responsible for establishing and achieving customer service objectives for the delivery of technology services
- Responsible for analyzing new technology services and implementing solutions corresponding to business needs
- Responsible for budget management and cost containment initiatives

ACADEMIC EXPERIENCE:

CUNY School of Professional Studies - SPS (Fall 2010 to current position)
Faculty title: Adjunct lecturer
Courses taught:
BUS650 Knowledge & Information Systems (graduate)
BUS325 Principles of Management Information Systems (undergraduate)

College of Saint Elizabeth
School of Graduate and Continuing Studies - Summer 2006 to Spring 2009
Courses taught: BUS617 Managing information for more effective decision making (graduate)

Dowling College
Graduate School of Business
November 2002 to spring 2009
Courses taught: BUS6261 Information Technologies for Managers

Stony Brook University
Harriman School of Management - September 2002 to May 2004
Courses taught:
MGT563 Local Area Networking (graduate)

EDUCATION

New York University (NYU) - Wagner Graduate School of Public Service - New York, NY
Masters in Public Administration

Fordham University- Bronx, N.Y.
B.A. in History
Gulustan Dogan
80 Ave P, Apt. E10
Brooklyn, NY 11204
H 408.520.8624
B gdogan@gc.cuny.edu
www.sci.brooklyn.cuny.edu/~dogan

Education

2008–May 2013  Ph.D. in Computer Science, City University of New York
Science Fellowship Award

2008–2011  Master of Philosophy in Computer Science, City University of New York

2007–2008  Master Student in Information Systems, University of North Carolina Wilmington

2001–2005  B.S. in Computer Science, Middle East Technical University, Ankara, Turkey

Academic Experience

2010–Present  Adjunct Faculty, City University New York, Brooklyn College

8/2010–12/2010  Adjunct Faculty, City University New York, Lehman College
Introduction to Algebra

8/2007–May 2008  Teaching Assistant, University of North Carolina, Wilmington
Management of Database Systems, Introduction to Information Systems and Technology

Industry Experience

5/2012-12/2012  Graduate Software Developer Intern, Intel Corporation, Santa Clara, CA
Developing media components for Intel SoCs on tablet platforms

2005–2007  Software Engineer, Computer Center of Ankara Metropolitan Municipality,
Ankara, Turkey
Worked on Personnel Automation System, used technology: Oracle, Java

Spring 2007  Intern, Euro-Guest, Partner of European Union Leonardo Da Vinci Programs,
Augsburg, Germany
Worked as a member of the web design team, used technology: ASP.NET

Summer 2004  Intern, Basar Geographical Information Systems, Ankara, Turkey
Worked on a web based GIS project, developed a governmental website, used technology: MapInfo, ASP.NET

Summer 2003  Intern, ASKI Ankara Water and Sewage Works Computer Center,
Ankara, Turkey
Worked on a database project of ASKI subscribers, used technology: Oracle, Java

Research Experience

2009–Present  Researcher in US Army Research Laboratory (ARL) Project,
Network Science Collaborative Technology Alliance (NS-CTA), Research Subject:
Wireless Sensor Networks, City University of New York.

Publications

2012 Root-Cause Diagnosis in Error-Propagating Networks, Eunsoo Seo, Gulustan Dogan, Tarek Abdelzaher, Ted Brown, Under submission.
2012 Trust and Provenance Based Fault Tolerance for Data Faults for Proximity Sensors, Gulustan Dogan, Ted Brown, Under submission.
2012 Using Provenance In Sensor Network Applications for Fault-tolerance and Troubleshooting, Gulustan Dogan, Ted Brown, SENSORNETS International Conference on Sensor Networks (acceptance rate %16), Italy.
2011 DustDoctor: A Self healing Sensor Data Collection System, Mohammad Maifi Hasan Khan, Hossein Ahmadi, Gulustan Dogan, Kannan Govindan, Raghu Ganti, Theodore Brown, Jiawei Han, Prasant Mohapatra, Tarek Abdelzaher, IPSN International Conference on Information Processing in Sensor Networks, Chicago.
2011 Evaluation of Network Trust Using Provenance Based on Distributed Local Intelligence, Gulustan Dogan, Theodore Brown, Kannan Govindan, Mohammad Khan, Tarek Abdelzaher, Prasant Mohapatra, Jin-Hee Cho, MILCOM, Maryland.
2011 PRONET: Network Trust Assessment Based on Incomplete Provenance, Kannan Govindan, Xinlei Wang, Mohammad Khan, Gulustan Dogan, Kai Zeng, Gerald M. Powell, Ted Brown, Tarek Abdelzaher, Prasant Mohapatra, MILCOM, Maryland.

Professional Service/Memberships

April 2013 Technical Program Committee Member, The 2013 International Workshop on Trust, Security and Privacy for Big Data (TrustData 2013)
2013 ... Reviewer, ACM Transactions on Sensor Networks
2011-present IEEE Computer Society, ACM Computer Society
Beth Evans  
1552 Marine Parkway  
Brooklyn, New York 11234  
beth.evans.is@gmail.com

Professional Library Experience

Library, Brooklyn College of the City University of New York

September 2003 - Present  
Associate Professor / Electronic Services Specialist

September 1996 - August 2002  
Assistant Professor / Electronic Services Specialist

September 1994 - August 1996  
Assistant Professor / Reference Librarian (Substitute)

Responsible for delivering public services in a dynamic academic library

Current responsibilities include:

- Introducing, promoting and providing library faculty and staff training for licensed resources and online services
- Maintaining access to licensed resources and services including the SFX link resolver system
- Representing campus to University Electronic Resources Advisory Board and CUNY SFX Committee
- Library web site design consulting
- Coordinating virtual reference services
- Providing reference services at reference desk and through one-on-one consulting
- Providing generalized instruction for introductory English classes
- Targeting instruction and collection development for a number of curriculum areas including women’s studies, Africana studies, Puerto Rican and Latino studies, children’s studies, Judaic studies, and religious studies; past responsibilities have included departments of sociology, anthropology and speech
- Coordinating a program for and supervising library interns
- Chairing Library Copyright Committee and Library Committee on Electronic Information and Media Services
- Serving on Library Appointments Committee (elected office), Instruction Committee, Publications Committee

Initiatives have included:

- Banned Books Week 2012, initiator and program organizer
- CUNY Open Access Week 2010, initiator and organizer, Brooklyn College and New York City College of Technology
- Hosting and coordinating Open World Program 2003 delegation of visiting Russian Librarians
- Online curriculum design and development for Library partnership with New York City high schools through a U.S. Department of Commerce Technology Opportunities Program grant (1997-1999)
Professional Activities have included:
- Advisory Board Member, Queens College of the City University of New York, Graduate School of Library and Information Studies (2010-Present)
- President, Library Association of the City University of New York (2009-2010)
- Editorial Board of Online Journal of Distance Learning Administration (2001 - present)
- NYLINK Advisory Group Member (elected office; 2000 - 2006)
- Member, American Library Association, International Relations Round Table
- Member, American Library Association, New Members Round Table; resume reviewer (2002 - present)
- Member, Association of College and Research Libraries (ACRL); Spectrum Scholar Mentor (2005 - 2007)

Professional Development has included:
- American Library Association, Association for Library Collections and Technical Services, Fundamentals of Electronic Resources Acquisitions online course (July 2012)
- City University of New York CUNY/Shanghai Library Faculty Exchange (October 2011-November 2011)
- CUNY Librarians L.E.A.D.: Learn to Envision Alternative Directions (May 2010)
- Institute for Information Literacy, through City University-funded scholarship (1999)

Campus Committee Work has included:
- Chair, Faculty Council Honors, Citations and Awards Committee (2012-Present)
- Chair, Faculty Council Academic Integrity Committee (2009-2012)
- Chair, Faculty Council Committee on Course and Standing (2005 - 2007)

Publications
"Reflecting Our Communities: Brooklyn College Library's Internship Program Opens Doors and Minds" with Katelyn Angell and Barnaby Nicolas, American Libraries 43(1/2), 2012: 45-7.
HERSHEY HARRY FRIEDMAN, Ph.D.
Professor of Business
Finance and Business Management Department
School of Business
Brooklyn College
Brooklyn, New York 11210
(718) 951-5000 x2084

Education:

- Ph.D. (Business) 1977
  Graduate Center of the City University of New York
- M.B.A. (Business) 1975
  Baruch College, C.U.N.Y.
- M.A. (Economics) 1971
  Brooklyn College, C.U.N.Y.
- B.A. (Economics) 1968
  Brooklyn College, C.U.N.Y.

Academic Experience:

- 1986 - present
  Professor of Business,
  Deputy Chair of Business since 1995
  Co-Chair, Finance and Business Management Department (formerly Economics Dept.)
  since 2002
  Dept. of Economics, Brooklyn College.
- 1983 - 1986
  Professor of Business and Marketing, Fordham University, NYC.
- 1979 - 1983
  Associate Professor of Business and Marketing, Fordham University.
  Tenure awarded in 1982.
- 1977 - 1979
  Associate Professor of Quantitative Analysis and Marketing at Long Island University,
  Brooklyn, New York.
- 1975 - 1977
  Assistant Professor of Marketing at Montclair State College, Upper Montclair, New Jersey.
- 1971 - 1975
  Graduate Fellow in Economics and Finance, Baruch College, NYC.

Microeconomics, Macroeconomics, Money and Banking, Urban Economics, American Economic History, Multivariate Statistics, and Consumer Behavior.

Honors, Awards, Grants:

- Certificate of Appreciation -- School of Business, May 10, 2012
- "Distinguished Advisor Award" Presented by SGS Student Government, June 5, 2002.
- "Professor of the Year," May 7, 2002 (award from the Brooklyn College Accounting Society)
- Brooklyn College Performance Excellence Award, May 24, 2000
- Brooklyn College Excellence in Teaching Award, May 24, 2000
- "Outstanding Business/Economics Professor of the Year," May 9, 2000 (award from the Brooklyn College Accounting Society)
- Principal Investigator, Kauffman Collegiate Entrepreneurship Network Grant ($24,300)
- Principal Investigator Kauffman Foundation Grant "Religion and Entrepreneurship ($25,000) with Linda W. Friedman
- City University of New York Diversity Grant, 2003 ($2,500), with Dr. Tomas Lopez-Pumarejo
- Citigroup Foundation Entrepreneurship Grant 2005 ($75,000) with BC Foundation and Magner Center
- Citigroup Foundation Entrepreneurship Grant 2006 ($70,000) with Herve Queneau, BC Foundation, and Magner Center
- Appointed Contributing Editor of Thalia: Studies in Literary Humor, 1998
- Awarded Bernard H. Stern Chair of Humor, 1997-1999
- President's Resource Grant 1997
- Excellence in Teaching award, Brooklyn College Faculty Day, May 28, 1997
- Direct Marketing Educational Foundation Fellowship, May 1985
- Community Appreciation Award, December 1983
- Honorary Member, Beta Gamma Sigma
- Regent's Scholarship, 1965-68
Experience

SENIOR ASSOCIATE, DELOITTE FINANCIAL ADVISORY SERVICES, NEW YORK, NY

JAN. 2012-PRESENT
Manage local and on-site forensic acquisitions and analysis of various electronic media types in connection with financial and other investigations. Execute data analysis and document recovery on materials related to copyright infringement, patent dispute, fraud, bankruptcy matters, and HR related matters. Assist with leading evidence custodian responsibilities for the Deloitte Forensic group. Use best practices for maintaining chain of custody and preserving the authenticity of electronic materials. Knowledgeable with open source forensics tools. Expert in Apple Macintosh/iPad/iPhone investigations. Experience working with large clients in various industries.

ASSISTANT HARDWARE TECHNOLOGY MANAGER, CLEARY GOTTLIEB STEEN & HAMILTON LLP; NEW YORK, NY

NOV. 2002-DEC. 2011
Assist the Hardware Technology Manager (HTM) with departmental operations including employee supervision. Help coordinate with work scheduling and ticket flow. Recommend to HTM, input on process flow, modification of departmental policies/procedures and equipment recommendations. Liaise with other IT-related departments. Special projects and responsibilities requiring investigation, analysis, resolution, and hardware/software provider contact as assigned by the HTM. Oversee management/completion of home support issues. Coordinate and review the editing, revision and updating of technical documentation and procedures with Hardware staff and other departments.
Knowledge resource for Computer Technicians and Systems Engineers. Tracking of the firm’s computer hardware and assets via Asset Trail database tracking system. Management of primary computer hardware repairs with outside vendors. Built and maintain system to manage printers via Web JetAdmin (WJA) 10.1. Migrated WJA 10.1 environment to WJA 10.2. Recommendation of security practices and settings for networked printers. Knowledge resource for MacOS-related issues. Troubleshooting of Mac- and MacOS-related issues in the Graphic Design department. Responsible for IP address assignment for static devices such as printers. Patching of LAN connections in network/telephone closets and updating of firm-wide patch plan.


INFORMATION SYSTEMS SUPPORT SPECIALIST, MZA EVENTS, INC.; NEW YORK, NY

MAY 2002-SEPT. 2002
Responsible for day-to-day IT Operations for both New York and Atlanta offices. Daily duties included server maintenance, adding new users to the domain, adding mailboxes to Exchange server, configuring user workstations, troubleshooting user problems, PC repair, ensure successful backup of servers to tape drive, configuring email using MS Outlook for both POP3 and Exchange mail. Managed user accounts and groups using Novell 3.12 System Console and Win2000 Active Directory. Managed network printers with HP JetAdmin. Managed IP addressing scheme in both locations. Rolled out NAV Corporate Edition 7.6 at both sites. Upgraded both New York and Atlanta sites with new servers, loaded Win2000 Server, wrote login scripts and configured domain and user information for each site. Performed a Novell 3.12 to Win2000 migration. Configured pcAnywhere for remote access to both servers and workstations in the Atlanta office. Advised senior management on purchases of servers, desktop computers, and accessories. Updated and maintained both the New York and Los Angeles www.AIDSWalk.net websites.

HELP DESK ANALYST II, UNITED NATIONS CHILDREN’S FUND (UNICEF); NEW YORK, NY

FEB. 2001-MAR. 2002
Promoted from Level I phone support to Level II desk side support in June 2001. Daily duties included desk side support of 1000+ users. Installation and configuration of standard MS Office applications. Configuring user email using Lotus CC:Mail 8.41 and Lotus Notes 5.05. Troubleshooting various network issues, including local network and Internet access problems. Managing user accounts with NetWare Administrator. Solved and wrote documentation for Lotus Notes and CC:Mail fixes. Assisted with the office-wide migration from CC:Mail 8.41 to Lotus Notes 5.05 and

Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

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Cranford, NJ 07016
(631) 796-1977
pgallo2@mac.com

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office-wide migration from Novell 4 to NT4 Domain. Occasional repair of printers, PCs, and the installation of optical drives or other peripheral components.

**SYSTEMS SUPPORT TECHNICIAN, FAIRPOINT COMMUNICATIONS; E. GREENBUSH, NY**  
**SEPT. 2000-JAN. 2001**  
Daily duties included desk-side support. Set up user machines and their components. Responsible for troubleshooting both network and client workstation issues. Created user profiles on both NT 4.0 and Win2000 platforms, and added workstations to the domain. Setup and configuration of local and network printers using HP JetAdmin software. Configured user email using MS Outlook 98/2000 for both MS Exchange and Internet mail. Recovered data on corrupted hard disks, installed peripheral cards, and PC, Laptop and Printer repair. Responsible for troubleshooting various software on a user’s PC, including Win98/NT4/2000, Novell, MS Office 97/2000, Citrix, TBS, and Billplex.

**UPGRADES MANAGER, COMPUSA; LATHAM, NY**  
**SEP 1998-AUG 2000**  
Promoted from Lead Sales Associate to Upgrades Manager in April 2000. Responsible for selling of computer upgrades and accessories. Coordinated weekly work schedules for departmental staff. Managed payroll with a given budget. Handled escalated customer service issues. Answered technical questions in person and via phone.

**Education**  
**JOHN JAY COLLEGE OF CRIMINAL JUSTICE; NEW YORK, NY**  
MS, Forensic Computing, Aug 2011  
Capstone Applied Research Project: *Apple’s iPad as a Digital Forensic Tool*

**CUNY BACCALAUREATE PROGRAM; NEW YORK, NY**  
BS, Computer Information Systems, Jan 2008

**STATE UNIVERSITY OF NY, UNIVERSITY AT ALBANY; ALBANY, NY**  

**Professional Affiliations**  
- High Technology Crime Investigation Association

**Professional Development/Training**  
- Macintosh Forensic Primary Analysis, Black Bag Technologies, 09/2012  
- Ethical Hacking, Learning Tree International; 09/2008  
- Supervisory Series (Role of the Supervisor; Effective Interviewing; Communicating Clear Expectations; Coaching, Counseling and Discipline; Conducting Performance Appraisals; Managing Difficult People), Holt Learning; 6/2008  
- Securing Wireless Networks, Learning Tree International; 06/01/2007  
- Computer Forensics and Incident Response, Learning Tree International; 07/14/2006  
- Mac OS X Support Essentials, Novaworks Computer Systems, 10/2005  
- Project Management: Skills for Success, Learning Tree International; 06/24/2005  

**Certifications/Awards**  
- Thomas W. Smith Academic Fellowship  
- CUNY BA/BS Distinguished Scholar Award  
- Win2000 Microsoft Certified Professional  
- CompTIA Network+ Certified Professional  
- CompTIA A+ Certified Technician
Raz Godelnik
150 95th Street Apt. 5c, Brooklyn, NY 11209 • 302-981-9843 • raz@ecolibris.net

Teaching Experience
2011-Present  CUNY, School of Professional Studies  New York, NY
    Adjunct Faculty
    • Teach an online course ‘Introduction to Green Business’ (BUS 336) for students
      pursuing Online B.S. in Business at CUNY School of Professional Studies (SPS).
    • Developed the objectives, syllabus and course outline.

2011-Present  Parsons The New School for Design  New York, NY
    Adjunct Faculty
    • Teach ‘New Product Development’ (PSDS 3122) and ‘Economics and Ethics of
      Sustainable Design’ (PUDM 2101), courses for students in the BBA Program in
      Design and Management at Parsons.
    • Developed objectives, syllabus and course outline for ‘New Product Development’ and
      the syllabus for ‘Economics and Ethics of Sustainable Design’.

2009-Present  University of Delaware, Department of Business Administration  Newark, DE
    Adjunct Faculty
    • Co-teach ‘Sustainability and Green Business’ (BUAD 429/667), a course for
      undergraduate and MBA students at the department of Business Administration.
    • Co-developed the objectives, syllabus and course outline.
    • Launched and led hands-on projects with local businesses focusing on strategic and
      marketing green challenges.

Work Experience
2011-Present  Triple Pundit  New York, NY
    Contributing Writer
    • Write articles on green business issues for one of the leading news websites on CSR and
      Sustainability (www.triplepundit.com).

2007-Present  Eco-Libris  Newark, DE
    Co-founder and Manager
    • Co-founded and manage Eco-Libris (www.ecolibris.net), a green company working to
      green up the book industry by promoting the adoption of green practices, balancing out
      books by planting trees, and supporting green books.
    • Responsible for developing and implementing the company’s strategy, including social
      media campaigns, strategic collaborations and stakeholder engagement.

2005-Present  Ma’ariv  Israel/U.S.
    Contributing Writer
    • Write articles on green business issues for the online edition of Ma’ariv, one of the
      largest newspapers in Israel (www.mrg.co.il).
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2005-2007
Hemper Jeans
Tel Aviv, Israel
Co-founder
- Co-founded an eco-fashion venture that worked to design, manufacture and market the first fashionable jeans made of hemp, an eco-friendly alternative to cotton.
- Developed the company’s business model and wrote its business plan, performed an in-depth research on the hemp and eco-fashion markets, managed the financial side of the development of the first prototypes and led the company’s capital raising activities.

2003-2005
Ministry of the Interior
Jerusalem, Israel
Advisor to the Minister of the Interior
- Oversaw issues relating the Israeli Population Administration, including the handling of appeals sent to the Minister by parliament members, civil and humanitarian organizations and others. Among these issues were foreign workers, immigration to Israel, the personal, formal and legal status of Israeli citizens and residents and humanitarian issues.
- Assisted the Minister in his efforts to implement new policies, in areas such as the legal status of foreign workers and their families and naturalization.
- Represented the Minister in meetings of ministerial and parliamentary committees.

2002-2003
McCann Erickson
Tel Aviv, Israel
Economist in the Finance Department
- Prepared monthly financial reports for McCann’s headquarters in Europe and the US.
- Provided financial information to McCann’s headquarters upon request.

2001
Charlotte’s Web Networks
Andover, MA
Assistant to VP of Business Development
- Did an internship of four months in a networking equipment company.
- Produced comparative market analysis data and tools to facilitate the company’s sales and marketing activities.

1998-2000
Brinkner-Inger CPAs
Tel Aviv, Israel
Assistant to Financial Manager
- Participated in the financial management of 10 industry-university R&D consortia, which received governmental grants from the Israeli Ministry of Industry and Trade to develop new implementable technologies.
- Assisted in managing and controlling annual budgets totaling $70 million.

Education
MBA, major in Finance.
Tel Aviv University, Israel, June 2001.
- Including studies at Brandeis University (USA) as part of a student exchange program.

B.A., Economics and Communications
The Hebrew University of Jerusalem, Israel, June 1997.

Internet and Technical Skills
- MS office, Blackboard, ePortfolio
- Basic knowledge of Dreamweaver, FTP (FileZilla and FireFTP) and HTML
William Hampton-Sosa, PhD
800 East 17th Street, Apt. 6C
Brooklyn, NY 11230
whamptonsosa@gmail.com

EDUCATION

PhD, Graduate Center, City University of New York, 2011
Major: Business / Specialization: Information Systems

MPhil, Graduate Center, City University of New York, 2006
Major: Business

MBA, Baruch College, City University of New York, 2005
Major: Information Systems

BBA, Baruch College, City University of New York, 2001
Major: Information Systems

PROFESSIONAL POSITIONS

Academic

Assistant Professor, Department of Finance and Business Management,
Brooklyn College, City University of New York (February 2011 – present)

Instructor, Department of Finance and Business Management,
Brooklyn College, City University of New York (August 2010 – February 2011)

Instructional Technology Fellow,
Macaulay Honors College, City University of New York (July 2006 – July 2009)

Adjunct Lecturer, Department of Statistics and Computer Information Systems,
Baruch College, City University of New York (January 2005 – December 2005)

Instructor, Department of Statistics and Computer Information Systems,
Baruch College, City University of New York (September 2002 – January 2005)

Research Assistant, Department of Statistics and Computer Information Systems,
Baruch College, City University of New York (September 2001 – September 2002)

Non-Academic


RESEARCH

Refereed Articles


**SERVICE**

Secretary, Department of Finance and Business Management, Brooklyn College, City University of New York (August 2010 – Present)

Tow/Furman Scholarship Committee, Brooklyn College
Brooklyn College, City University of New York (2012)

International Education and Global Engagement Advisory Committee
Brooklyn College, City University of New York (2011)
EDWARD HANSSEN  
Associate Professor  
CIS Deputy Chair  
Business Department  
Queensborough Community College  
Bayside, New York 11364  
(718) 281-5468

EDUCATION  
Westchester Community College  
AAS, Mechanical Technology  
1964  
Pace University  
BA, Computer Science  
1971  
Pace University  
MBA, Management Science  
1973  
Pace University  
Doctorate of Professional Studies, Information Systems and Economics  
2009

ACADEMIC EXPERIENCE (Other than QCC)  
Lubin School of Business, Pace University  
Adj. Prof.  
Computer Inf. Systems  
9/01 – 12/03  
Manhattan College  
Adj. Prof.  
Business  
9/02 – 12/03

EXPERIENCE  
CitiBank  
Assistant Vice President  
2/73 – 3/81  
JPMorgan  
Vice President  
3/81 – 6/96  
Verizon Communications  
Director, Outsourcing  
6/96 – 8/01

PUBLICATIONS  


PERSONAL DATA  
HOME ADDRESS:  
88 Pleasant Avenue, Pleasantville, NY 10570  
TELEPHONE NO.:  
(914) 769-0725

SCHOLARLY PRESENTATION AT NATIONAL OR REGIONAL PROFESSIONAL CONVENTIONS:  
July, 2005

Jointly presented at Fall 2005 ISTEIL Conference with second QCC faculty member on “Teaching Us: Faculty Lessons Learned from working with Student Teams”

Jointly presented at June 2006 Faculty of the Future Conference with second QCC faculty member on “No Limits: Diverse Pedagogic Practices”

Joint presentation accepted for June 2007 Faculty of the Future Conference with second QCC faculty member on “E-Portfolio in Capstone and Milestone Courses”

Jointly presented at Fall 2007 ISEITL Conference with second faculty member on “E-Portfolio in Capstone and Milestone Courses”

Jointly presented at Fall 2007 SUNY/Cornell Institute for Community College Development Conference with second faculty member on “E-Portfolio in Capstone and Milestone Courses”.

Jointly presented at Nassau Community College’s Excellence in Teaching Conference, April 2008, with second faculty member on “E-Portfolio in Capstone and Milestone Courses”

Jointly presented at Connecticut’s Distance Learning Center’s March 2008 E-Portfolio Conference with second faculty member and Connecticut member on “E-portfolios as Measurement Tools”

Presented Poster Presentation on May 8, 2009, CUNY Gen Ed Conference, Lehman College “Student ePortfolios in Practice”

Presented at Innovations in Education Conference, Stony Brook University, May 27 & 28, 2009 “Student ePortfolios in Practice”

Presented at QCC CTEL workshop, October 7, 2009, “Student Assessment with ePortfolios”

Will present at Association for Authentic, Experiential and Evidence-Based Learning Annual Conference, Boston, July 19-22, 2010 “Extending the Classroom Boundaries Using ePortfolios”

Program Committee member Association for Authentic, Experiential and Evidence-Based Learning Annual Conference, Boston, July 19-22, 2010

COLLEGE AND DEPARTMENTAL ACTIVITIES:

Business Department Web Coordinator; revising Business Department Web Page to revised QCC style and format. January, 2005 - Present

QCC volunteer for 2005 Innovations Conference. March, 2005

E-Portfolio presentation at QCC’s CETL General Education session, Fall 2005

E-Portfolio presentation at CUNY Conference of the College held at QCC in May, 2006
KARA M. HEFFERNAN
3731 73rd Street Apt. 7A, Jackson Heights, New York 11372 | 312.282.7324 | heffernan525@bc.edu

EXPERIENCE

DIRECTOR, INTERNSHIP PROGRAMS, OFFICE OF ACADEMIC AFFAIRS 11|2012 – Present

MANAGING DIRECTOR, CUNY INSTITUTE FOR SOFTWARE DESIGN AND DEVELOPMENT 08|2006 – 11|2012
City University of New York (CUNY), New York, NY
Negotiate and manage grants and contracts. Recruit, hire, onboard, train, and manage staff. Identify revenue opportunities and manage grantwriting projects. Oversee project programs that employ over 500 students annually.

- Managed launch of new IT internship program in partnership with the Department of Education, which has yielded between $1-$2 million in additional revenue in each of the last five years and supported the employment of between 120 and 250 students each year.
- Developed and managed launch of the CUNY Math Challenge, an undergraduate math contest, and managed contest each of three subsequent years. The contest, which became an annual event, involved over 1,000 CUNY students and awarded over $50K in prizes.
- Managed research grants totaling between $200K and $1 million annually, supporting between 10 and 20 students and faculty each year.
- Led the proposal development process for a new CUNY master’s degree. Supported degree launch in 2012, facilitating course development, faculty onboarding, and enrollment of the first cohort of 20 students.
- Developed and improved systems and processes for internship programs, increasing efficiencies, scale, and reporting.

STRAIGHT COMMUNICATIONS ANALYST 01|2003 – 07|2006
Center for Neighborhood Technology (CNT), Chicago, IL
Conceptualized and executed strategies to support the organization’s fundraising and communications goals. Served on the Cabinet, a management steering committee.

- Improved fundraising capacity by building infrastructure, including the creation of proposal submission procedures; organizational boilerplates; a fundraising database; a document archive; and prospect lists. Also conducted proposal-writing training sessions.
- Oversaw institutional fundraising, from strategic planning to research to program development to proposal writing to reporting, helping to raise over $2.5 million for new projects.
- Vastly improved quality of written products and clarity of message by writing, editing, and coordinating production of annual reports; brochures; fundraising appeals and event materials; web copy; research reports; presentations; and letters to the editor, op-ed pieces, and press releases. Organization continues to use similar language.
- Helped to raise organizational visibility by leading a communications planning and implementation process; making messaging and branding more consistent; cultivating media; serving on the planning committee for 25th Anniversary event which drew over 300 attendees and featured the mayor of Chicago.
- Assumed leadership role on a staff-driven initiative to improve organizational effectiveness.

PROGRAM ASSOCIATE, COMMUNITY & RESOURCE DEVELOPMENT UNIT 09|2000 – 09|2002
Ford Foundation, New York, NY
Supported grantmaking to build more sustainable and equitable communities by conducting research; assisting with strategic planning; analyzing issues; organizing convenings; representing the foundation at events; evaluating proposals; conducting site visits; developing internal grant documents; analyzing grant portfolios; and managing consultants.

- Supported development of two new grantmaking portfolios that each awarded $4 million in grants per annum.
- Facilitated conceptualization and preliminary development of what became the Camden Regional Equity Demonstration Project, a large, unit-wide, multi-year, grantmaking project.
- Coordinated Foundation-wide working group on community organizing, which resulted in more collaborative grantmaking internally and greater collaboration with other funders.

University of California-Los Angeles, Los Angeles, CA 10|1999 – 06|2000
RESEARCH ASSISTANT, DEPARTMENT OF URBAN PLANNING
Co-developed and staffed action-research project between community and labor activists and urban planning students.

- Produced popular education materials used by local activists to organize.

Mindscape, a Division of the Learning Company, Novato, CA 01|1997 – 09|1998
ASSOCIATE PRODUCER
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Managed product development of educational software products, coordinating development; design; marketing; quality assurance; legal; technical support; sales; and manufacturing functions of all internal departments, as well as external consultants, vendors, and distributors.

- Successfully launched nine products on time and within budget.

**Global Network Navigator (GNN), a Subsidiary of America Online, Berkeley, CA**
04|1995 – 12|1996

**ASSISTANT PROGRAM MANAGER**

Coordinated content development, design, marketing, legal, editorial, and production tasks of web-based publication.

- Supported launch and production of innovative web “program” called NET Party, an election parody, and organized and moderated related weekly political web chat show.
- Promoted from administrative assistant after supporting the rapid growth of the advertising sales department, which grew from two to seven staff within several months and rapidly increased sales.

**National Training and Information Center, Chicago, IL**
09|1994 – 04|1995

**PROJECT COORDINATOR**

Advanced anti-crime and public safety policy agenda through research, information dissemination, training, technical assistance, and organizing.

- Organized grassroots campaign that resulted in the creation of a publicly funded community crime prevention fund.

**Citizens for Community Improvement, Des Moines, IA**
08|1993 – 08|1994

**COMMUNITY ORGANIZER**

Developed grassroots leaders and built broad multi-sector partnerships to support housing and public safety policy campaigns.

- Organized grassroots campaigns that resulted in passage of an Iowa state law to improve school safety and a Des Moines city ordinance to improve housing conditions.

**EDUCATION**

**Baruch College-City University of New York**, Master of Business Administration (M.B.A.).


Distinctions: California Planning Foundation Merit Award, Department of Urban Planning Alumni Award.

**Boston College**, Bachelor of Arts (B.A.) in Political Science.

Distinctions: Arts & Sciences Honors Program, *magna cum laude*.

**PROFESSIONAL AFFILIATIONS**

*Progressive Planning*, Editorial Board (Copyeditor), 2000-2013


**PUBLICATIONS**


Howard Kline  
75 Bank Street  
New York, N.Y. 10014  
917 826 3209  
hwrdkline@gmail.com

PROFILE

UNIVERSITY INSTRUCTOR AND SENIOR BUSINESS CONSULTANT  
Experienced Instructor in both graduate and undergraduate business programs, teaching business and information systems in Management Information Systems, E-Commerce, Database Systems, Project Management and Telecommunications.

In addition, over fifteen years consulting experience working for IBM Global Business Services, the IBM Institute for Business Value, PricewaterhouseCoopers, and Gartner Research and Services Group. Broad and deep consulting experience assisting Fortune 1000 clients in the telecom, financial services, technology and retail industries. From 2010 – 2012, consulting for ThoughtBurst, Inc., a consulting firm specializing in customer facing operations, multi-channel solutions, and business process transformation.

EDUCATION

Course work in preparation for Ph.D/Philosophy, University of Toronto, 1968 – 1969, Toronto, Canada  
BA - University of Hartford, 1960-1964, Hartford, CT  
Multiple industry courses in technology, process, and consulting

EXPERIENCE

FORDHAM UNIVERSITY, New York  
Gabelli School of Business  
Fordham College of Liberal Studies  
Fordham College at Rose Hill  
Graduate School of Business Administration  

Adjunct Instructor  
Lecturer

Teaching diverse graduate and undergraduate courses in business and information systems and technology. Courses introduce students to core and advanced concepts, including recent research, and noteworthy case studies.

In addition, from 2010 through 2012, responsible for developing and maximizing corporate relations with Microsoft Corporation, IBM, and Google, culminating in events of interest to students of all levels and majors.

SETON HALL UNIVERSITY, New Jersey  
Stillman School of Business  

Adjunct Instructor

Undergraduate course in Management Information Systems, Excel and Access Database system

CUNY/SCHOOL OF PROFESSIONAL STUDIES, New York  
BS Degree Program in Business  

Adjunct Instructor

Course in Management Information Systems

MONTCLAIR STATE UNIVERSITY, New Jersey  

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School of Business
Course in Management Information Systems

GLOBAL BUSINESS SERVICES
Associate Partner, Global Telecom Center of Excellence (2006-2009), Full Time Position
Developed and delivered technology enabled solutions to address client needs in the areas of business process and architecture optimization and modernization. Worked closely with executive management and IT personnel to tailor solution to critical business need and targeted benefit. Designed for continuous improvement to exploit business advantage.

- Designed for the elimination of a high cost/low function by proposing solutions based on industry standard services and software. Used Zachman Framework, Component Business Model, and Capability Maturity Model as guides.
- Developed approach to impact market position from follower to leader based upon process transformation of critical areas in supply chain.
- Created process model to achieve 18-25% reduction in cost (time and staff) by eliminating manual bottlenecks and delays in handoffs

IBM INSTITUTE FOR BUSINESS VALUE
N.A. Communication Industry Consultant (2005-2006), Full Time Position
Developed and published action oriented market research, strategy and IT/network planning roadmaps to guide clients in the adoption of new business models for convergence, digital content and entertainment. Worked closely with telecom executives to provide market guidance and business impact analysis. Tailored recommendations to client’s specific markets and core competencies.

- Streamlined investment process in emerging technologies to gain competitive advantage by elucidating critical decision points and success factors.
- Guided industry executives in adoption of new business models to avoid lost opportunity and expand product portfolio by partnering with aggregators and content providers.
- Enabled industry executives to take advantage of emerging trends through phased roadmaps

IBM GLOBAL BUSINESS SERVICES
Managing Consultant (2002-2005), Full Time Position
Guided and worked with clients to focus on process improvement as a market differentiator in customer care, contact center operations, and self service. Applied leading practices and maturity models to guide solution development. Collaborated with senior management in development of transformational roadmaps for technology, business and organization.

- Designed and implemented solution to improve customer satisfaction ratings from JD Powers from below satisfactory to outstanding
- Restructured and consolidated a distributed customer care environment across 14 regions, multiple contact and data centers, to achieve 8 – 15% improvement in service levels (reduced wait times, transfers, and dropped calls).

PRICEWATERHOUSECOOPERS, New York, N.Y. 1998 - 2002
Managing Consultant, Full Time Position
Improved clients’ business operations and technology infrastructure to support sustained excellence in customer relationship management. Originated leading practice customer care solutions for American Express credit card and banking divisions, Credit Suisse First Boston, and SunTrust. Raised alignment between IT and business by leveraging commercial-off-the shelf (COTS) and software as service applications (SaaS).

- Delivered solution to enable straight through processing (STP) resulting in increased sales and revenue growth of up to 3-5 % for specific customer segments.
- Developed and deployed a new online bank providing 24X7 services with seamless in-house links to established financial capabilities.
- Designed new business opportunity for multi-channel, high touch, web based advisory services to high net worth individuals.
Objective
Combine educational background in mathematics and professional background in computer applications to make contribution in new generation of education.

Education
Ph.D. in Mathematics, the University of Oklahoma, GPA 4.0
M.S. in Mathematics, the Zhengzhou University, P. R. China

Area of Interest
- Software Application developments
- Artificial Neural Network
- Numerical Analysis and Mathematical Modeling
- Education and Curriculum Development

Experience
9/2002 – present: Chairperson (7/2011), and Associate professor (1/2008), Department of Computer Systems Technology, New York City College of Technology-CUNY
  - Coordinator of Programming and Design module responsible for course design and implementation.
  - Member of curriculum committee.
  - Internship Coordinator

9/2001-5/2002: Visiting Professor, the Department of Mathematics and Computer Science, Kean University, Union, NJ
  - Teaching programming languages, Date Structure courses.

9/2000-5/2001: Assistant Professor and Graduate Student Advisor, Department of Computer Science, Eastern Washington University
  - Teaching C++ Programming, assembly language, and automation courses
  - In charge of graduate student admission and advisory

  - Design database and develop web application project in information security department that is to build centralized authorization over many applications developed firm-wide. (Using tool: UNIX, Perl/cgi, c++, Sybase, JAVA)
Software Developer, Downstream Information System, Conoco, Inc. Lake Charles, LA
- As member of application group, developed, supported and updated applications including crude oil inventory and real-time plant monitor.

Numerical analyst and software developer, O’Meara Consulting, Inc. Norman, OK.
- Developing the mathematical algorithm for reservoir simulation
- Writing the back-end program driving the simulation implementation
- Enhancing simulation performance through application of optimization theory and data filtering techniques

Teaching Assistant, Department of Mathematics, University of Oklahoma, Norman, OK.
- Taught Calculus, Linear Algebra and statistics courses.

Funding
- Co-PI of NSF S-STEM Grant: $599,792 May 1, 2012- April 30, 2016. The project titled “Engineering the Future: Pathways to Success for Women and Underrepresented Students in the Engineering Technologies” will support about 30 talented, low-income students as they work to earn baccalaureate degrees in Departments of Computer Systems Technology (CST), Computer Engineering Technology (CET), and Electrical Engineering/Telecommunications Technology (EET).
- Senior Recipient of NSF Grant-"City Tech S-STEM": $496,800 for period 9/30/2007 - 9/29/2011. This scholarship program will support 36 talented, low-income students for 4 years as they work to earn baccalaureate degrees in the Departments of Computer Systems Technology (CST), Computer Engineering Technology (CET), and Electrical Engineering/Telecommunications Technology (EET).
- Co-PI of GRTI June 2006 – May 2007 grant: Awarded $12,000.00 for research entitled “New Approach to Glucose Monitoring Using a New Non-Invasive Ocular Amperometric Glucose Sensor”. The main objective of this project is to develop a new technology for a non-invasive monitoring of glucose levels in human body. Such a method of monitoring blood glucose should increase patient acceptance due to its non-invasive nature, its simplicity and safe use, and therefore, it would present major advantages over existing invasive methods.
- PI $5,000 2003 – 2004 PSC-CUNY Research Foundation, “Three dimension model for fluid accumulation and flow in porous medium”. The project developed a mathematical model and computer software to formulate rainfall drainage model of highway roadbed and to provide estimation of parameters such as permeability of highway roadbed. A proposal for fund of continuing research was submitted and expects to be funded for academic year 2004-2005.
Viju Raghupathi, Ph.D.
Assistant Professor, Dept. of Finance and Business Management
Brooklyn College, City University of New York
2900 Bedford Avenue, Brooklyn, NY 11210
Phone: (718) 951-5000, X3359; Fax: (718) 951-4385
Email: VRaghupathi@brooklyn.cuny.edu

Education
Ph D., Business (Information Systems), The Graduate Center, City University of New York, 2011
M.S. (Information Systems), The University of Texas at Arlington, 1992
M.B.A (Management & Marketing), Bharathiar School of Management and Educational Development, India, 1988
Bachelor of Commerce (Business Management), University of Madras, India, 1986

Research Interests
Social Media; Social Networks and Social capital; IT in Healthcare; Data Analytics; Opinion Leadership;
Business Analytics; Role of IT in Sustainability, Healthcare, Corporate Governance; Computer-mediated Group Communication; Information Systems Identity; Business Ethics.

Refereed Journal Publications


Non-Refereed Publications


Master’s Thesis: Designed an online hypertext intelligent tutoring system for database design, unpublished but copyrighted (presented at DSI 1992 conference).

Research in Progress
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The Transformational Role of Information and Communication Technologies in Moving toward a More Sustainable World - submitted to Journal of Management for Global Sustainability, May 2013.

With Raghupathi, W. A Health Analytics Review - Submitted to Methods of Information in Medicine, June 2013.


With Benbunan-Fich, R. A Social Capital Perspective on Computer-Mediated Group Performance - to be submitted

With Fogel, J. Role of Social Media and Opinion leadership in Purchase - to be submitted

Refereed Conference Publications


Committees

Member, Undergraduate Curriculum Committee (CUNY wide committee)
Member, Information Technology Committee (Department of Finance and Business Management committee)

Awards and Prizes

- Doctoral Student Research Grant Competition, City University of New York, NY 2009
- 2004, 2005 City University of New York Provost's Fellowship
- Dean’s List for Graduate Programs, College of Business, The University of Texas at Arlington, TX, 1990
- National Scholarship Scheme Merit Certificate, Government of TamilNadu Education Department, India, 1989.

Professional Positions

Academic

- Assistant Professor, Finance and Business Management, School of Business, Brooklyn College, CUNY, Sept. 2012-present
- Substitute Assistant Professor, Finance and Business Management, School of Business, Brooklyn College, CUNY, Spring 2011-Summer 2012.
- Adjunct Faculty, Fox School of Business, Temple University, Philadelphia, 2010-2011.
- Adjunct Faculty, Zicklin School of Business, City University of New York, 2004-2011
- Lecturer, College of Business, California State University, Chico, 1992-1995.
EDUCATION

Ph.D., Computer Science, 1982, City University of New York
M.S., Computer Science, 1975 City University of New York
B.A., Mathematics, 1973, Yeshiva University of New York

ACADEMIA

BROOKLYN COLLEGE, PROFESSOR—Department of Computer Science, Brooklyn, N.Y. (August 2001 - present) Director, Bachelor of Science in Information Systems

QUEENS COLLEGE, ADJUNCT PROFESSOR—Department of Computer Science, Queens, N.Y. (April 1991 - June 1991)

BROOKLYN COLLEGE, ADJUNCT LECTURER—Department of Computer Science, Brooklyn, N.Y. (Sept 1978 - June 1979)

THE CITY COLLEGE, ADJUNCT LECTURER—Department of Computer Science, New York, N.Y. (Sept 1975 - June 1978)

PUBLICATIONS/PRESENTATIONS

- Sklar, E., Parsons, S., Tejada, S., Lowes, S., Azhar, M.Q., Chopra, S., Jansen, R., Rudowsky, I., Using artificial intelligence to help bridge students from high school to collegeAAAI Spring Symposium, March 26-28, 2008, Stanford University, California.
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**EXTERNAL GRANTS**

- CPATH EAE: *Extending contextualized computing in multiple institutions using Threads*, PI Charles Isbell (Georgia Institute of Technology), Co-PI Jill Auerbach (Georgia Institute of Technology), Co-PI Maureen S Biggers (Georgia Institute of Technology), Co-PI Merrick L Furst (Georgia Institute of Technology), Co-PI Ju A Wang (Southern Polytechnic State University), Co-PI Patrick O Bobbie (Southern Polytechnic State University), Co-PI Chih Cheng Hung (Southern Polytechnic State University), Co-PI Elizabeth Sklar, Co-PI Ira Rudowsky (CUNY Brooklyn College), Co-PI Gerald Weiss (CUNY Brooklyn College), Co-PI Ashraf Saad (Armstrong Atlantic State University), Co-PI Pamila Dembla (Kennesaw State University), and Co-PI Jose M Garrido (Kennesaw State University), NSF CPATH #07-22177, $889,580 (CUNY Brooklyn College award $165,600), 10/2007-9/2011.


- Served as CIS representative on the college committee that successfully brought the FAA “Airways Facilities- Collegiate Training Initiative” to Brooklyn College and I continue to serve as ongoing liaison. Program provides internships to CIS students with the potential of converting to full-time appointment upon graduation.
Paul Russo, Ph.D.
1831 Madison Avenue, Apt. 9i
New York, NY 10035
917-293-3911
paul.russo@mail.cuny.edu

Research Interests:
- Online Communities and Social Networks
- Data Science and Predictive Analytics for Social Interaction Modeling
- Trust and Motivations
- Health Information Systems

Education:
- May 2012 NYU Polytechnic, New York, NY Ph.D., Technology Management
- May 1991 University of Dallas, Dallas, TX M.B.A., Engineering Management
- May 1987 Vanderbilt University, Nashville, TN M.S., Electrical Engineering
- May 1985 Loyola University, New Orleans, LA B.S., Physics

Publications:

Working Papers:

Grants:
- Distributed Collaboration in International Science Research Teams. NSF CREST Program Award: Sub-Project Lead Investigator. Award $60,000.
- Enhancing the Use of EHR Systems in Health Education Programs. CUNY Workforce Development Initiative: Principal Investigator. Award $21,500.
- Pathways to the Health Information Management Profession. CUNY Workforce Development Initiative: Principal Investigator. Award $19,500.
- Applications of Health Information Technology. CUNY Workforce Development Initiative: Principal Investigator. Award $17,500.
- Managing Strategy and Technical Change for Sustainable Urban Environments. CUNY Workforce Development Initiative: Principal Investigator. Award $15,000.
Management Training for New York State Employees. NYS GOERS/CSEA Partnership for Education and Training: Principal Investigator. Award $950,000.

**Academic Workshops:**

**Presentations:**

**Reviewer:**
- Computer Supported Cooperative Work and Social Computing (CSCW) 2013
- International Journal of Electronic Commerce 2012
- International Conference on Information Systems (ICIS) 2013, 2011
- Workshop on Information Technology and Systems (WITS) 2011
- International Conference on Weblogs and Social Media (ICWSM) 2013, 2012, 2010
- Americas Conference on Information Systems (AMCIS) 2012

**Teaching:**
- September 2012 – Present **NYU Polytechnic** Brooklyn, NY
  - Organizational Behavior (Graduate)
- January 2008 – Present **Brooklyn College** Brooklyn, NY
  - Business Analytics (Graduate – In development)
  - Organizational Behavior (Graduate)
  - Organizational Behavior and Business Policy (Undergraduate)
  - Introduction to Management (Undergraduate)
- September 2012 **CUNY School of Professional Studies** New York, NY
  The Digital Revolution and Information Age (Undergraduate)

**Professional Experience:**
- July ’99 – Present **City University of New York (CUNY)** New York, NY
  - Current Title: Director, Online Degree Programs, School of Professional Studies
  - Previous Title: Associate Dean, Professional Education, Baruch College

**Other Professional Activities:**
Conference Chair (2008, 2009) Association of Continuing Higher Education (Region 3)
Board of Directors, Governors Island Computer Science and Information Technology Research Center, Inc. (2001, 2002)
TASSOS H. SARBANES  
56 Tain Drive  
Great Neck, NY 11021  
(516) 385-9618  
email: sarbanes@hotmail.com

EDUCATION:
Ph.D. Computer Science, CUNY Graduate Center/Program in Computer Science, 1991. Not completed – Dropped out.  

EMPLOYMENT:
Senior Solution Architect at Credit Suisse, AG 2011-Present  
Supporting VLDB and mission critical applications running on low latency infrastructure on RDBMS (Oracle, Sybase, MS SQL Server), memory-based databases (Oracle Coherence), and NoSQL (MongoDB, Cassandra). There are major initiatives in the Strategic Risk group where Big Data and Data Analytics technologies being used for data analysis, data mining, quantitative research, modeling to produce visualizations and other business intelligence reports that will help senior management to predict and evaluate best practices. Multi-node Hadoop clusters being used for data processing and storing. The R statistical programming language is used for all mathematical analysis.

Sr. Database Architect, Engineering Group at Bank of America 1999-2011  
—Data Warehouse – ETL Tools  
—Quality Management – Six Sigma Business Process Improvement  
—Database Analyst/Researcher – Emphasis on memory-based databases  
—Disaster Recovery Expertise – Applied during the Sept.11, 2001 catastrophic events  
Business Intelligence Analytics  
—SAP ERP/BI Data Warehouse – Used SAP’s HANA memory-based database  
—Siebel’s CRM Modules – Business Objects and web-based tools used for reporting

Sr. Database Administrator at Republic National Bank 1998-1999  
—Database migrations conversions – Migrate from Sybase to Oracle RDBMS  
—Oracle Financials – Reporting on Oracle’s financial modules (AP, AR, GL,…)  
—Data Architect/Modeler – ERWin (Entity Relationship diagrams)

TEACHING/ADMINISTRATIVE EXPERIENCE:  
CUNY/QUEENS COLLEGE, Queens, NY (1995-2001)  
Computer Science Department (Graduate Division) Adjunct Faculty  
• Taught courses in intermediate and advanced Data Structures and Programming Languages.  
• Taught courses in intermediate and advanced Data Bases and programming them.
- Taught credit-bearing courses in Elements and Introduction of Algorithms and advanced topics in Analysis and Performances of Algorithms.
- Evaluated course development and instruction in Data Bases and Programming.
- Served on committee to reassess the use of the Academic Computer Center in order to meet the Today’s Technology.
- Conducted staff development and peer supervision.

UNIVERSITY OF ATHENS, Athens, Greece (1981-1986)
Department of Mathematics and Physics (Under-Graduate Division) Teaching Assistant
- Taught courses in intermediate and advanced Analysis and Algebra.
- Taught courses in intermediate and advanced Probabilities and Statistics.
- Taught courses in Elements of Physics and Astronomy’s.
- Served on a team participating in Mathematical Olympics.

SELECTED PROFESSIONAL ACTIVITIES:
- ACM (Association for Computer Machinery)
- IEEE (Institute of Electronic and Electrical Engineers)
- SIAM (Society of Industrial Association Mathematics)
- NYAS (New York Academy of Sciences)
- NYOUG (New York’s Oracle User Group)
- IOUG (International Oracle User Group)
- OUAG (Oracle Applications User Group)
- ASUG (America’s SAP User Group)
- AIIM (Association for Information and Image Management)
EDUCATION:
Coursework in the PhD, Medical Informatics Program at the University of Medicine and Dentistry of New Jersey, 2008-2009
M.B.A., Concentration in Health Administration, University of Miami, Coral Gables, Florida, 1982.

EMPLOYMENT HISTORY:
City University of New York, School of Professional Studies, New York, New York
August, 2012 to present: Academic Program Director, Health Information Management Program. Responsibilities include accreditation, student recruitment, instruction, and all other aspects of program management.

Raritan Valley Community College, Somerville, New Jersey
August, 2007 to August, 2012: Coordinator/Instructor, Health Information Technology Program. Program responsibility includes accreditation, online course development and instruction.

CUNY, School of Professional Studies, New York, New York
December, 2011 to present: Course developer and Adjunct Instructor, HIM Program.

Kaplan University, Fort Lauderdale, Florida
August, 2009 to present: Adjunct Instructor and Course Developer, Health Information Technology Program. Teach online HIT courses and developed a Capstone course.

Colorado Technical University Online, Colorado Springs, Colorado
August, 2009 to 2010: Adjunct Instructor, Medical Coding and Billing Program. Teach online courses in medical terminology.

Brookdale Community College, Lincroft, New Jersey
January, 2009 to May 2009: Adjunct Instructor, Health Information Technology Program. Taught the Introduction to Health Information Technology course.

Greenville Hospital, Jersey City, New Jersey
September, 2006 to August, 2007: Director, Health Information Management Department. Hospital closure.

Healthcare Document Services, Colts Neck, New Jersey

Jersey City Medical Center, Jersey City, New Jersey
November, 1989 to January, 1993: Director, Medical Record Department. Updated antiquated systems throughout the department to maximize space and resources in this 450-bed urban teaching facility.

Monmouth Medical Center, Long Branch, New Jersey
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January, 1987 to October, 1989: Director, Medical Record Services. Most significant accomplishment at this non-profit, 546-bed teaching Medical Center was the development of criteria, selection, and successful implementation of a new patient management system.

Veterans Administration Medical Center, Brooklyn, New York
December, 1984 to December, 1986: Chief, Medical Information Section. Directed the overall operation of this 45 employee Medical Record Department of a complex, multiple-site, 1308-bed teaching Medical Center. Through maximization and utilization review, the Center was a DRG “winner” for 1985.

Other Positions:
Veterans Administration Medical Center, Miami, Florida
January, 1979 to December, 1984: Chief, Ward Administration Section and the Assistant Chief, Medical Information Section.

Florida Medical Center, Fort Lauderdale, Florida
May, 1978 to January, 1979: Assistant Director, Medical Record Department.

Center for Disease Control, Atlanta, Georgia

GRANTS
April, 2010 to April, 2012: Raritan Valley Community College, North Branch, New Jersey. Principal Investigator, Health IT grant from the Office of the National Coordinator. Recruitment of students, faculty, and organized curriculum for online delivery to students. $500,000.

February, 2012 to present: Raritan Valley Community College, North Branch, New Jersey. Developer and instructor in DOL Customized Training Grant for Robert Wood Johnson University Hospital, New Brunswick and Rahway, NJ. Provide training for HIM Department employees in medical terminology, anatomy in preparation for ICD-10 and ICD-10 training. $100,000.

PROFESSIONAL/VOLUNTEER POSITIONS
• Active Member, American Health Information Management Association, 1977 to present, ID #015241
• Active Member, New Jersey Health Information Management Association, 1985 to present; Past President, 2012–
• Present: President, 2011–2012; President-Elect, 2010–2011; Treasurer, 2008 to 2010
• Member, Board of Directors, NJHITEC, New Jersey’s Regional Extension Center, August 2010–present
• Member, Accreditation Review Panel, CAHIIM, 2010–present.
• Member, AHIMA Health Information Exchange Practice Council, 2012–present.
• Chair-Elect, AHIMA Council on Excellence in Education, 2011 to present.
• The Lutheran Girls' Camp Association, Bear Mountain, NY- Member, Board of Directors, 1989 to present
• RVCC Faculty Federation, Treasurer, 2009 to 2012
• RVCC Forum, Junior Faculty Member, 2010 to 2012.
• RVCC Faculty Ethics Committee, 2010 to 2012.
• Colts Neck Sports Foundation; Member, Board of Directors and Treasurer, 2000–2007
• Dad’s Athletic Club, Colts Neck High School, Colts Neck, NJ; Member, Board of Directors & Treasurer, 2002–2005
• Colts Neck Reformed Church, Colts Neck, NJ; Deacon, 2003–2005
KEVIN TUCKER  
65-08 Cooper Avenue  
Glendale, NY 11385  
(718) 821-6362 kevin.tucker@earthlink.net

STUDENT SERVICES EXPERIENCE:  
2011 – Present: The City University of New York, NY  
Executive Director, Ernesto Malave Leadership Academy  
- Direct all aspects of the Malave Leadership Academy (MLA), including but not limited to the administration of its budget, supervision of professional and administrative staff, program and curricula development.  
- Oversee programming for MLA’s two signature student engagement programs: CUNY CORPS, a leadership-through-service program, and Student Investment Advocates, a leadership through legislative advocacy program.  
- Partner with campus student life directors and student leadership coordinators to support campus leadership programs.  
- Students participating in MLA were honored with a Proclamation from New York State Assemblyman Pete M. Rivera commending their exemplary leadership, outstanding advocacy on behalf of CUNY, and the community service they performed within New York State. The students participated in trips to Albany and district office visits, to convey the importance of CUNY’s legislative budget to their educational experience. They also participated in numerous community service initiatives, including, Syracuse Habitat for Humanity, FEEDNYC, Public Allies Martin Luther King Day celebration, Million Trees NYC; CUNY Citizenship NOW events and an eyeglass drive for New Eyes for the Needy.  
- Through MLA’s primary sponsorship of the Emerging Leaders Conference, the New Leadership Challenge, and the Vice-Chancellors Excellence in Leadership Awards, as well as, supporting sponsorship of student leadership conferences at the College of Staten Island and Lehman College, over 800 CUNY students received leadership programming.  

2007 – 2010: The City University of New York, NY  
Data and Operations Manager, LEADS Project, CUNY Office of Student Affairs  
- Member of the Leadership Team that coordinates NYS Vocational Rehabilitation sponsorship for CUNY students with disabilities enrolled across 24 campuses.  
- Establish and oversee enrollment targets for twenty campus counselors, as well as, all statistical reports and data requests related to the project.  
- Manage implementation of Efforts-to-Outcomes case management software as a pilot for future use throughout Student Affairs.  
- Liaison with both the Vice-Chair of the NYS Regents and the NYS Education Department’s Assistant Commissioner regarding current project status and projected outcomes.  
- Create and administer a three-year, 7.8 million dollar budget, including oversight of all expenditures, fiscal reports, and audits.  

Assistant Director of Education  
- Coordinated enrollment, educational support services and fiscal case management to members in various post-secondary educational programs for the nation’s largest Labor-Management Training Fund.  
- Negotiated the development of additional Nursing and Allied Health programs with Public, Private, and Proprietary institutions.  
- Supervised multiple teams comprised of twenty-three Nurse-Educators, Program Specialists,
Program Assistants and Administrative Assistants.
- Directly managed multiple hard and soft funding streams in excess of twenty million dollars.

2003 – 2005: The City College of New York, NY

**Deputy to the Vice President for Student Affairs**
- Supervised fourteen professional staff within the following units: Career Center; International Student and Scholar Services; and Student Disability Services.
- Served as campus Judicial Officer responsible for student discipline.
- Managed Divisional Financial Aid and Scholarship funds, including Campus Emergency Loan Program and Divisional Trust and Gifts accounts, totaling six million dollars.
- Served as ombudsperson for students’ problems and complaints.
- Oversaw Divisional assessment initiatives.
- Served on the Board of Directors of the Student Services Corporation.

1999 – 2003: The City College of New York, NY

**Director, Office of Student Disability Services**
- Responsible for coordinating reasonable accommodations and academic adjustments for students with disabilities.
- Instituted several new student support services initiatives.
- Organized disability awareness workshops.
- Managed multiple funding streams.
- The number of students registered with the office increased by sixty-nine percent over three years.
- Academic Adjustment Memo cited in Disability Compliance in Higher Education Yearbook as a model for protecting the institution while balancing the students’ right to accommodations.
- Served as Chair of the Campus Food Service Committee.
- Served on the Board of Directors of the Student Services Corporation.

1997 – 1999: Queens College, Flushing, NY

**Project Manager, CUNY Assistive Technology Services (CATS).**
- Responsible for providing assistive technology support services to the nineteen CUNY campuses including student evaluation and training, product referral, AT lab design and set-up, and staff training.
- Negotiated, purchased, and coordinated, assistive technology software site-licenses for CUNY.
- Organized a CUNY assistive technology conference and vendor exposition.
- Utilized assessment instruments to evaluate the level of technological access on each CUNY campus.
- CATS named one of the 100 “best practices” nationally by the American Association of Public Colleges and State Universities.

**EDUCATION:**
- 2014 (expected) Ed.D. (Higher Education Administration), Northeastern University
- 1994 M.A. (Sociology), New York University.
- 1989 B.A. (Sociology), Queens College, CUNY.
- 1987 A.A. (Liberal Arts), Borough of Manhattan Community College, CUNY.

**TEACHING EXPERIENCE:**
- 2012: Disability & Higher Education, Master’s Program in Disability Studies, CUNY School of Professional Studies
- 2011: Disability & Higher Education, Master’s Program in Disability Studies, CUNY School of Professional Studies

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EDUCATION

New Jersey Institute of Technology, Newark, NJ
Ph.D. in Computer Science (9/88 - 5/96)
Dissertation: Knowledge Discovering for Document Classification Using Tree Matching in TEXPROS.

New Jersey Institute of Technology, Newark, NJ
M.S. in Mechanical Engineering (Manufacturing Systems) (1/86 - 1/88)
Thesis: Closed-loop Machining in Precise Turning.

National Cheng Kung University, Tainan, Taiwan
B.S. in Mechanical Engineering (9/76 - 6/80)

PROFESSIONAL EXPERIENCE

BMCC, City University of New York, New York, New York 9/2008 – present

Associate Professor, Department of Computer Information Systems 9/2008 – present

Assistant Professor, Department of Computer Information Systems 2/2004 – 8/2008

- Instructed courses for System Analysis and Design, System Implementation, Computer Programming in Java (I) & (II), and Business Systems (II), Data Structure (II), Database Systems (I) & (II), and Computer Software
- Developed new courses such as XML and Database System (I) & (II).
- Developing a new program and new courses for Geographic Information Science Program.
- Serving/Served on the committee of departmental Curriculum, Faculty Council, Faculty Senate, Faculty and Student Disciplinary, Middle Stage Evaluation, Instructional committee, Admission committee, and as Library/CPE Liaison.
- Performed research in the fields of Semantic Web and Web Service, Distributed Health Information System using ONTOLOGY, Machine Learning, eHealth Ontology, and Data Engineering.


Senior Consultant, assigned by YoungTech Consulting Co.

- Analyzed nytimes.com web server activities and provided business trend to market research, Sales Representatives and Editorial Staff. Created business report by running PL/SQL against Oracle database server for information extraction.
- Evaluated, tested and validated hit numbers and reported to management on Oniture a real time web server activity monitor.

LUCENT TECHNOLOGIES, INC. 1998 – 2003

Member of Technical Staff

Member of Wireless RF design tool development team in Whippany, NJ. 1999 – 2003
Led the database team for client and server database development. Provided in-depth knowledge advice for database modeling, database programming and administration. Coordinated developers, testers and system engineers for general data requirement and design. Involved in the telecommunication software development lifecycle, such as user requirement collection, database design, coding, testing, and data validation for six releases.

Responsibilities and contributions included:

- Designed Oracle 8i/9i Database, Administrated Server, and developed applications using PL/SQL. Created packages, stored procedures, and triggers for applications. Installed instances, created objects, and configured servers. Authored user guide and policy for user database server installation and upgrade.
- Validated server data, database backup/recovery using Recovery Manager, and performance tuning using STATSPACK. Hosted and maintained three servers to provide global data storage and access.
- Analyzed user requirement and designed data model, table structure and software architect for new features of RF (Radio Frequency) design tool and Central Database Systems. Successfully improved the data requirement implementation time and quality by enforcing the ISO checklist.
- Used Visual C++, MFC, Visual Basic 6.0, and MS Access 2000 for implementing RF design tool for the following modules: Database, Data Recovery, Import/Export, and Data Management modules. Some components were implemented using COM technology. Supported 15 developers for database/data management implementation requests and successfully delivered all releases on time.
Tropion, Senior Software Developer/Tester, Assigned to Bell Labs, Murray Hill, NJ. 1998 – 1999
Quality assurance and software developer for On-Ram database system. Ensured the quality of installation, operation, and performance. Contributions included:
- Analyzed each management module and developed testing specifications for subsystems, including sytest and stress test. Provided performance and coding improvement.
- Implemented test specifications and automated the testing process using C/C++ and Tcl languages in a UNIX environment.

UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY, Newark, NJ
Full Time Assistant Professor/Adjunct Professor, Health Information Department 1998 – 2000

CHAOGYANG UNIVERSITY OF TECHNOLOGY, WuFeng, Taiwan, ROC
Associate Professor, Information Management Department 1997 – 1998
- Instructed courses on Database Management System, AI, and Human Resource Management. Developed the curriculum for Office Automation System. Managed the laboratories for department. Designed and implemented a prototype system to automate the Information Management department’s administration process.
- Served as a consultant for KungHeui Optical Inc. and developed a Business Information System using Visual Basic 6.0 and MS SQL Server.

Engineering System Programmer
- Member of Technical Services Department Involved in Software Development Lifecycle and validation of various computer systems for FDA regulatory compliance. Conducted user training and technical support. Evaluated vendors for software purchase. Provided training and technical support for end users. Contributions included:
  - Designed, implemented, and validated Document Image Management Systems for manufacturing SOP and technical specification. This client/server project used the tools of VB, Visual C++, Win SDK, and MS Access.
  - Performed VMS and UNIX systems programming to support medical device manufacturing execution and office automation using VAX Basic, C, and DEC Form.
  - Developed and validated a Data Storage system to support data collection and tracking for R&D department.
  - Performed interface programming between computers and Computer-Numeric-Controlled (CNC) manufacturing machines to create a Direct Numeric Control system. Improved efficiency, effectiveness, and quality machine codes creation and distribution.

CATHEDRAL STONEWORK INC., Computer Services Department, New York City, NY 1990 – 1993
Director of Computer Services
Managed the Computer Services Department, which provided software and hardware support for designers, manufacturing engineers, and machine operators. Successfully increased the production capacity 30% by introducing automation and computer systems. Designed and Integrated CAD/CAM system and 3-D digitizer with Flexible Manufacturing System. Performed PLC programming and maintained Computer Numeric Control machines system maintenance. Administered local area network.

NEW JERSEY INSTITUTE OF TECHNOLOGY, Newark, NJ 1986 – 1990
Teaching Assistant
- Taught Computer Programming and Problem Solving, C, and Pascal in Computer Science Department.
- Conducted research on Robotics Vision and System Integration and developed a KOVIS Image Processing System.
- Served as Research Assistant in Mechanical Engineering Dept., New Jersey Institute of Technology, Newark, New Jersey. Taught a laboratory course of Engineering Material and Manufacturing Process.
- Was in charge of programming for CNC machines and Machine Vision System.
<table>
<thead>
<tr>
<th>School</th>
<th>Location</th>
<th>Program Title</th>
<th>Tuition /credit*</th>
<th>Target audience</th>
<th>Format</th>
<th>Credits in the major</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUNY-The College at Old Westbury</td>
<td>Long Island, NY</td>
<td>B.S. in Computer and Information Science</td>
<td>PT: $181/credit FT: $4,350/year (+ fees)</td>
<td>Traditional full-time college students and working adults (most courses are run at night)</td>
<td>In Person</td>
<td>68</td>
<td>Focuses on the subjects of computers, their organization, and the programs that run them. Emphasis on software rather than hardware. Majors can specialize in either system software or information systems or computer and network security.</td>
</tr>
<tr>
<td>SUNY-The College at Old Westbury</td>
<td>Long Island, NY</td>
<td>B.S. in Management Information Systems</td>
<td>PT: $181/credit FT: $4,350/year (+ fees)</td>
<td>Traditional full-time college students and working adults (most courses are run at night). Many international students</td>
<td>In Person</td>
<td>72</td>
<td>Gives students a firm grounding in information processing as well as in business fundamentals. Majors take courses in CIS (36 credits), business (20 credits), Economics (8 credits) and Math (8 credits) courses.</td>
</tr>
<tr>
<td>SUNY-Stonybrook</td>
<td>Long Island, NY</td>
<td>B.S. in Information Systems</td>
<td>PT: $232/credit FT: $2,785/year (+ fees)</td>
<td>Traditional full-time college students and working adults (day and night courses)</td>
<td>In Person</td>
<td>64</td>
<td>Technically oriented program emphasizing the design and implementation aspects of large-scale information systems as well as the more traditional managerial and organizational issues. Majors can specialize in: business and economics; technological systems management; or a custom-designed specialization.</td>
</tr>
<tr>
<td>CUNY-Baruch College</td>
<td>New York, NY</td>
<td>Bachelor of Business Administration in Computer Information Systems</td>
<td>Standard CUNY Rates</td>
<td>Traditional full-time college students and some working adults (day and night courses)</td>
<td>In-Person</td>
<td>30</td>
<td>Provides a foundation in business and managerial issues related to information technologies, including object-oriented languages, e-business principles and technologies, network and telecommunications, the Web, electronic commerce, and IT in the financial markets.</td>
</tr>
<tr>
<td>CUNY-NYCCT</td>
<td>New York, NY</td>
<td>Bachelor of Technology in Computer Systems</td>
<td>Standard CUNY Rates</td>
<td>Traditional full-time college students and working adults. Many students transfer from the CIS AAS degrees</td>
<td>In-Person</td>
<td>68</td>
<td>Comprehensive IS/IT degree with specializations in systems analysis and design, programming, databases, networking, security, and web design.</td>
</tr>
<tr>
<td>New Jersey Institute of Technology</td>
<td>Newark, NJ</td>
<td>B.S. in Business and Information Systems</td>
<td>PT: $472/credit FT: $12,400/year (+ fees)</td>
<td>Traditional full-time college students and working adults (day and night courses)</td>
<td>In-Person</td>
<td>68</td>
<td>Students learn about IS topics such as databases, application development tools, web design, software use and evaluation, management information, and decision support systems, as well as business topics—accounting, finance, financial products, business operations, and marketing.</td>
</tr>
<tr>
<td>Rutgers University</td>
<td>Newark, NJ (Rutgers Business School)</td>
<td>B.S. in Management Information Systems</td>
<td>PT: $333/credit FT: $10,668/year (+ fees)</td>
<td>Traditional full-time college students and working adults (day and night courses)</td>
<td>In-Person</td>
<td>21 major credits beyond the business core</td>
<td>Intended to develop analytical and information management skills that are useful in business as well as in public administration.</td>
</tr>
<tr>
<td>University of Maryland-Adelphi, MD</td>
<td>Adelphi, MD</td>
<td>B.S. in Information Systems Management</td>
<td>PT: $499/credit (+ fees)</td>
<td>Many working adults (courses online)</td>
<td>Online</td>
<td>39</td>
<td>Focuses on the concepts, methods, and practical applications of information systems in the workplace. Students can minor in business, cybersecurity, or marketing.</td>
</tr>
</tbody>
</table>

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Evidence of Current Jobs
<table>
<thead>
<tr>
<th>Job Title</th>
<th>Industry</th>
<th>Degree/Experience</th>
<th>Major Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Assistant, Level 2 - Database Management</td>
<td>Education</td>
<td>Bachelor’s degree in Comp. Sci. or related</td>
<td>- Experience scripting in SQL and SQL database</td>
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<td></td>
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<td></td>
<td>- Experience in Windows Server</td>
</tr>
<tr>
<td>Analyst, Digital Marketing Analytics</td>
<td>Advertising</td>
<td>Bachelor’s or master’s degree in various fields, but must have with</td>
<td>- Interpersonal and written and oral communication skills</td>
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<td></td>
<td>technical and project management skills</td>
<td>- Strong project management skills</td>
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<td></td>
<td>- Familiarity with analytics tools or methodologies</td>
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<tr>
<td>Entry- Level Developer/Software Test Engineer</td>
<td>Software &amp; Services</td>
<td>Bachelor’s or master’s degree in Comp. Sci., IT, or related field</td>
<td>- Proficiency in a mainstream programming language</td>
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<td>- Ability to communicate complex technical information clearly</td>
</tr>
<tr>
<td>Business Analyst</td>
<td>Business Services</td>
<td>Bachelor’s or master’s degree in Comp. Sci., IT, or related field</td>
<td>- Ability to gather and analyze data requirements</td>
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<td>- Create conceptual mockups using professional design software</td>
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<td>- Develop process models, traces, and quality management techniques</td>
</tr>
<tr>
<td>Entry-Level Software Developer</td>
<td>Staffing</td>
<td>Bachelor’s degree in Comp. Sci., CIS, Software Engineering or related field</td>
<td>- Exposure to IT systems</td>
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<td></td>
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<td>- Java programming experience</td>
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<td>- Database architecture, queries, data mapping, etc.</td>
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<td>- Experience working within a project team</td>
</tr>
<tr>
<td>Entry-Level Software Developer</td>
<td>Logistics</td>
<td>Bachelor’s degree in Comp. Sci. or MIS</td>
<td>- Basic knowledge in Object Oriented Programming.</td>
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<td>- Basic knowledge in Databases and Database concepts.</td>
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<td>- Basic knowledge in HTML, CSS, and JavaScript.</td>
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<td>- Basic SQL query experience</td>
</tr>
<tr>
<td>Technology Service Engineer</td>
<td>Construction</td>
<td>Bachelor’s degree in IT or relevant certifications</td>
<td>- Interpersonal, troubleshooting and communication skills.</td>
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<td>- Knowledge of Windows Server administration</td>
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<td></td>
<td>- Familiarity with networking</td>
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<td></td>
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<td>- PC and peripheral support experience</td>
</tr>
<tr>
<td>Entry Level IT Consultant</td>
<td>Consulting</td>
<td>Bachelor’s degree in Comp. Sci., MIS, or related field</td>
<td>- Experience with C++ and/or J2EE/Java development</td>
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<td></td>
<td>- Experience with C# and/or .Net development</td>
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<td></td>
<td>- Excellent analytical, written and oral communication skills</td>
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<td></td>
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<td>- Ability to work in a team</td>
</tr>
<tr>
<td>Junior Software Test Engineer</td>
<td>Technology</td>
<td>Bachelor’s degree in Comp. Sci. or related field</td>
<td>- Experience in C#, C++, or JavaKnowledge</td>
</tr>
<tr>
<td>Field Technical Support Representative</td>
<td>Technology</td>
<td>Bachelor’s degree + one year of troubleshooting</td>
<td>- Basic troubleshooting skills</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>- Basic analytical and communications skills</td>
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<td></td>
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<td></td>
<td>- Proficient in professional oral, and telephone communication skills</td>
</tr>
</tbody>
</table>
Job Description

Job Title: IT Assistant, Level 2 (Provisional) - Database Management

Job ID: SI59

Location: College of Staten Island

Full/Part Time: Full-Time

Regular/Temporary: Regular

GENERAL DUTIES

I.T. Assistants perform entry-level professional work in technology-related disciplines. While areas of specialization vary, typically I.T. Assistants work in areas such as development/programming, communications, technical support, or similar based on the needs of the Information Technology area to which they report. Work tasks include resolving minor technology problems, monitoring activities, and maintaining documentation. They have latitude for independent initiative and judgment, under supervision.

This job is in CUNY's Classified Civil Service. The full specification is available on our website at http://www.cuny.edu/about/administration/offices/othr/hrsclassification/ccsjobs.html

CONTRACT TITLE

IT Assistant

FLSA

Non-exempt

CAMPUS SPECIFIC INFORMATION

Assists the Office of Public Safety and the Office of Parking & DolphinCard Services in managing the BlackBoard Transact system, C-Cure Security system, and iStar network. Under general to limited supervision, will maintain, support, and upgrade all system hardware, application, and operating system software, and BlackBoard card reader network, as required. Performs daily system checks to ensure that card readers are online, nightly reports have been printed, the prior day’s downloads and backup tape were successful, and that adequate disk space is available in all subdirectories. This includes server/access configuration, server maintenance, and backup procedures.

MINIMUM QUALIFICATIONS

1. High School Diploma, G.E.D., or equivalent

2. A minimum of six months of full-time experience in a computer or technology-related position. Experience that is more than 20 hours per week and less than 35 hours per week may be counted at 50% of the requirement (i.e., two months of part-time experience equal to one month full time experience)

3. Additional experience and/or education that can be met by ONE of the following: An additional three years and six months of full-time work experience in a computer or technology-related position; an Associate’s degree plus 18 months of full-time work experience in a computer or technology-related position; or a Bachelor’s degree from an accredited institution

4. Demonstrated English Language proficiency

5. A Motor Vehicle Driver’s license, valid in New York State, may be required for some, but not all positions.
This title has three levels. To qualify for Levels 2 and 3, additional qualifications, such as education, experience, or certification relevant to the area of specialization are required.

OTHER QUALIFICATIONS

Preferred Qualifications include:
- BS in Computer Science or other related field
- Familiarity with supporting users of Blackboard and in the technical back end role; user aspects, problems, implementation; adept at troubleshooting user problems
- Experience with Blackboard system administration and C-Cure Security System
- Experience with and the ability to troubleshoot iSTAR panels
- Database Management Systems (MS SQL, Oracle and MySQL) experience. Experience scripting in SQL and SQL database
- Proficient in cable runs
- Experience in Windows Server
- Ability to organize and prioritize workload in order to meet necessary deadlines
- Ability to make independent judgments/decisions within established guidelines and a demonstrable teamwork attitude

COMPENSATION

New Hire: $46,704*
Incumbent: $52,775
*This amount reflects a 13% salary suppression in effect for the first 24 months of employment only.

BENEFITS

CUNY offers a comprehensive benefits package to employees and eligible dependents based on job title and classification. Employees are also offered pension and Tax-Deferred Savings Plans. Part-time employees must meet a weekly or semester work hour criteria to be eligible for health benefits. Health benefits are also extended to retirees who meet the eligibility criteria.

HOW TO APPLY

To apply, please go to www.cuny.edu; select "Employment", "Search Job Listings," "More Options to Search for CUNY Jobs," then enter the Job ID# in the "Job Opening ID" field. In order to be considered for this position, you must upload a resume, cover letter, and the contact information of three (3) professional references (as one file).

CLOSING DATE

July 17, 2013

JOB SEARCH CATEGORY

CUNY Job Posting: Information Technology/Technical

EQUAL EMPLOYMENT OPPORTUNITY

We are committed to enhancing our diverse academic community by actively encouraging people with disabilities, minorities, veterans, and women to apply. We take pride in our pluralistic community and continue to seek excellence through diversity and inclusion. EO/AA Employer.
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COMPANY DESCRIPTION
RTTS is the premier software and services firm that provides software quality for
critical business applications. Based in midtown Manhattan and serving Fortune
500 companies throughout the world since 1996, RTTS has provided solutions to
over 400 clients on hundreds of projects. RTTS also developed QuerySurge, the
leading Data Warehouse testing tool and TOMOS, the award winning AUM
solution. In forging strategic partnerships with leading software vendors IBM,
Microsoft, Oracle, HP, Teradata and other best-of-breed software providers, RTTS
offers the foremost end-to-end solution that ensures application functionality,
performance, security and data validation and verification.
For more information visit us at www.rttsweb.com.

JOB DESCRIPTION
Using your strong programming and analytical skills, you'll be responsible for
coding custom solutions using cutting edge automated functional and performance
quality assurance tools to support complex software applications. Other
responsibilities include:

- Work alongside development teams to verify application functionality, usability
  and scalability.
- Assist application owners with regression testing, script testing, user
  acceptance testing and test architecture support.
- Develop and maintain reusable code libraries to help build streamlined and
efficient development/testing processes.
- Evaluate and analyze automation metrics, providing feedback to developers, system
  architects and subject matter experts.

Assignments vary in length depending on our clients' needs, providing you with the
opportunity to learn new technologies and gain valuable exposure to many areas of
business while working with client teams and experienced RTTS mentors.

QUALIFICATIONS
Must possess an undergraduate or graduate level degree with a concentration in
Computer Science, Information Technology or a related field. Other qualifications
include:

- Proficiency in a mainstream programming language such as Java, C++, C#
  or .NET.
- Ambition to learn and utilize emerging technologies while working in a
  stimulating team environment.
- Professional appearance and the ability to communicate complex technical
  information in a clear and tactful manner.

ADDITIONAL INFORMATION
What We Offer
S40-50K, depending on experience. Excellent benefits package including medical,
dental, 401K, tuition reimbursement, paid vacation and holidays, continuous
learning and more. You can expect:

- Ongoing development of your skills working with web technologies,
  server-side software and database platforms.
- The most comprehensive up-front training program in the industry.
- One-on-one mentoring is provided, an ideal fit for recent graduates and career
  changers.
- A challenging, supportive, educational and fun work environment. Our office
  culture encourages innovation and professional growth.

All your information will be kept confidential according to BEO guidelines.

What Are You Waiting For?
If you'd like to start your IT career with RTTS, you should know that:

- The position is available at our midtown Manhattan office.
- Applicants for employment must be authorized to work in the U.S.
- You may have to travel to client offices in and around the metro area.
- You must reside within 40 miles of our office location and possess a valid driver's
  license and have access to a car.
Please email resume and cover letter. Applications without a cover letter will
not be considered.
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Entry Level Business Analyst Position

mmoSysts

Entry Level Business Analyst Position

NMC Systems Inc. is a US based company headquartered in Herndon, VA. For years, it has been our continuous endeavor to understand your quality-conscious discerning business needs and to successfully meet those. We specialize in creating high quality IT-based Business Management Solutions: Workflow and ERP Solutions: Custom Software Development Solutions: Application Development, its Integration and Implementation to companies of all sizes resulting in better, faster and more meaningful results.

Business Analyst

Job Code: 107

Job Locations: Jersey City (New Jersey-United States of America), Virginia (Virginia-United States of America), California (California-United States of America), West Virginia (West Virginia-United States of America), Lincoln (Nebraska-United States of America), Idaho (Idaho-United States of America), Austin (Texas-United States of America), Cabin John (Maryland-United States of America), S Coffeyville (Kansas-United States of America), Eager (Arizona-United States of America), Texas-United States of America, Jackson (Kentucky-United States of America)

Job Description:
> Implement advanced strategies for gathering, reviewing and analyzing data requirements.
> Prioritize requirements and create conceptual prototypes and mock-ups.
> Master strategic business process modeling, traceability and quality management techniques.
> Apply best practices for effective communication and problem-solving.

Functional Area: IT - Software

Functional Role: Business Analyst

NMC Systems specializes in Business Analyst/Quality Analyst. Our clients are amongst the listed Fortune 500 companies such as AT&T, Cerner, United HealthCare, Cognizant, Wall-Mart, Accenture, BCB, IBM, HCL America, American Express, American Airlines, State of TX, FRB, SAE International, Citigroup, AAA, Hertz, Ford, Qatar, Capital One Group, Sprint, Capitol One, Verizon, Bank of America, JP Morgan, Nation Wide, Freddie Mac, Fannie Mae, Wells Fargo, Path, Bank of America and many more.

Candidate Requirement

OPT/OC/H1B/USC (Master’s or Bachelor’s) in all streams like (Computer Science, Information Technology, Electrical Engineering, Mechanical Engineering, Industrial Engineering, Business Administration). Experience: 0 - 5 years

Qualification: Software/Basic Computer), Graduate, B.E/B.Tech, Post Graduate

Preferred Resume Formats: MS-Word

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JOB Ad publication date: 3 May 2013
Proposal to Establish a Bachelor of Science in Information Systems
CUNY School of Professional Studies
Approved by the School of Professional Studies Curriculum Committee, September 13, 2013
Approved by the School of Professional Studies Governing Council, October 10, 2013

Reference #: 13-04774
Title: Jr. Software Developer Consultant
Location: New York, NY
Position Type: Full Time/Contract
Experience Level: Start Date: 05/20/2013

Description

Genesis10’s G10 Associates Program is seeking qualified Entry-Level Software Developers to join our New York City, NY team!

Program Summary:
As a wave of baby boomer retirement looms on the near Client, more companies are recognizing a serious need to develop technology talent to fill the coming gap. That’s why companies look to Genesis10 and the G10 Associates Program. This innovative program mentors and develops the brightest recent graduates turning them into G10 Associates who are business and technology consulting professionals assigned to client engagements.

The G10 Associates Program is expanding in the New York market and is looking for strong technology candidates with exceptional soft skills to help us grow. New Software Development Consultants are enrolled in our Training Academy which provides our G10 Associate consultants the background they will need to succeed at our clients. Along with the training we provide a competitive salary, benefits, and direct client exposure that jump starts management consulting careers in a way that nobody else can.

Position Description:
As a Software Development Consultant with Genesis10, you build skills required in all phases of many different kinds of projects, focusing on many different technologies, including Java and .Net Development, MS SQL and Oracle Database Development, SharePoint Web Portal Creation, and many more cutting edge technology platforms and tools. From defining system requirements and designing technical solutions to developing and testing enhancements, Software Development Consultants turn ideas into reality. You collaborate with client and project teams to turn business requirements into detailed design specifications, and then build or enhance systems to meet their needs. Software Development Consultants are very comfortable with system design and development, and they possess solid communication and documentation skills.

Experience/Skills:
- Bachelor Degree in Computer Science, Computer Information Systems, Software Engineering or related technical major
- 1+ years IT systems exposure (can be in classroom environment)
- 1+ Years of Java programming experience
- Database architecture, queries, data mapping, etc.
- Experience working within a project team
- Excellent problem solving skills, very analytically minded
- MS Office applications

Desired Traits:
- Ability to stay focused while performing heads-down work
- Self-starting with a strong work ethic
- Able to manage time effectively
- Excellent team attitude with strong interpersonal and group communication skills
- Professional demeanor
- Desire to work in corporate environment and develop consulting skills

- Personal accountability

If you think you have what it takes to be the next great G10 Associate APPLY NOW!

Qualified and interested candidates should apply now for immediate consideration.

About Genesis10:
Genesis10 is a leading U.S. business and technology consulting firm with hundreds of clients needing proven talent and solutions to power their strategic initiatives. If you are a high performing business or IT professional with solid, referenced experience, we want to meet you. Genesis10 recruiters and delivery professionals are highly accomplished career advocates, who get to know you beyond your resume to position you with the opportunities that fit your skills, experience and aspirations. We have benefit options to fit your needs and a support staff that works with you from placement throughout your engagement project after project. To learn more about Genesis10 and to view all our available career opportunities, please visit us at www.genesis10.com.

Genesis10 is an Equal Opportunity Employer, M/F/D/V
Entry Level Software Developer
3LINC, LLC • South Amboy, NJ • 6/19/2013

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J O B D E S C R I P T I O N

Job Description
As an Entry Level Software Developer, you will help design, develop, test, debug, and document programming applications to satisfy requirements of one or more business areas. You will work with management to identify and specify complex business requirements and processes. Additionally, you will research and evaluate alternative solutions and make recommendations.

We will provide in-house training for all programming languages required on the job. You will be however, expected to be a fast learner and good communicator.

Hired prospects will work out of our South Amboy NJ location.

This is an entry level position.

About 3LINC

3LINC has over 100 years of combined business experience primarily developing, managing, and orchestrating distribution operations. We have worked for medium to large enterprises on a regional, national and global level. We are a powerful team made up of experts in information technology, business process, marketing, warehouse management, order management and web based technology. Most importantly, we are a customer focused organization with an insatiable drive to meet customer needs for accelerating sales and driving bottom-line performance. We know what it means to be a high performing distribution company. We have proven methodologies and an engagement model that assures execution excellence and long-term client success. We expect highly motivated candidates are can invest in, for years to come.

J O B R E Q U I R E M E N T S

Education and Experience
• Bachelor’s degree in Computer Science or MIS.
• Basic knowledge in Object Oriented Programming.
• Basic knowledge in Databases and Database concepts.
• Basic knowledge in HTML, CSS, and JavaScript.
• Basic SQL query experience.
• Excellent problem solving and troubleshooting skills.
• Strong communication and interpersonal skills.

J O B S N A P S H O T

Employment Type Full-Time
Job Type Consultant
Education 4 Year Degree
Experience None
Manages Others Not Specified
Relocation No
Required Travel Not Specified

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Overview:
Catchpoint provides real-time analytics in the end-to-end performance of internet services. Our web performance and application monitoring tools allow companies to measure the behavior of their services from multiple vantage points to better understand their performance and the factors impacting it. Using Catchpoint’s tools, companies can lower the cost of quality management and protect revenue.

Job Details

Job Title: Junior Software Test Engineer
Job Date: 06-09-2013
Duration: Full-Time
Company: Catchpoint Systems
Job Location: New York City, NY, US

Description:
Are you looking to join an exciting startup in New York City? A dynamic and energetic work environment where you will have an impact? Then this may be the opportunity for you.

Catchpoint Systems is a New York City company that offers application performance monitoring to Fortune 1000 and top internet companies. Our web-based platform helps clients get insight into what is impacting the performance, availability, and reliability of their websites or applications, allowing them to quickly address any issues before they impact revenue. Our clients include 24/7 Real Media, Business Insider, and Wayfair.

We are looking for a Junior Software Test Engineer with 0-2 years of experience in either C# or Java. This is an opportunity to join our quality assurance team. You will be building a QA automation system and verifying the proper functionality of the company’s products. Working at Catchpoint Systems will give you the opportunity to be part of a dynamic and energetic work environment where you can learn hands-on about a variety of technologies and receive real-life experience in building unit/automated tests, troubleshooting, and more.

Desired Skills & Experience

Experience in one of the following languages: C#, C++, or Java
Knowledge of classes, components, objects, interfaces, and key design patterns
Knowledge of basic relational database concepts
Experience in one of the following languages: C#, C++, or Java
Experience with automated test software like Selenium, Watir, or NightOwl
Experience with web browser technologies like HTML, CSS, and JavaScript

Detail-oriented and organization skills
Willingness to learn and utilize emerging technologies
Willingness to jump in and assist
Willingness to dig deeper to understand infrastructure code/business

Job Description

We believe that speed, availability, and reliability are key pillars to a company's existence and success.

Catchpoint Systems has built a monitoring platform designed for today's complex, dynamic and distributed IT. Catchpoint offers a superior Application Performance Monitoring service that combines synthetic, end user, and internal monitoring into a single solution to provide in real-time a complete view into the performance and health of online services. We provide a sophisticated but yet easy to use — performance analytics solution for the IT team.

Additional Information
Field Technical Support Representative I-1120979

Description

Field Technical Support Rep I

Printer and Personal Systems Group - Multiple U.S. Locations

In NEW YORK State

CONNECTICUT

Positions require up to 75% travel; company car provided

ABOUT HP

HP provides technology solutions to consumers, businesses, and institutions across the globe. Our offerings span IT infrastructure, personal computing and access devices, global services and imaging and printing for consumers, enterprises and small and medium businesses. Our company employs over 320,000 people in 178 countries doing business in more than 40 currencies and more than 10 languages.

HP’s focus on people underlies everything we do. Being known as a great place to work makes it easier to attract top talent. For us, being a great place to work is good business. HP people live for the big idea, the next great discovery, the new way of being. To us, “Invent” is more than a word; it’s who we are, the very soul of our organization.

Everything we do, we do to make technology more practical, usable, and valuable to our customers.

ABOUT HP TECHNOLOGY SERVICES

HP Technology Services is a global service provider and business integrator delivering solutions with speed, power, precision and passion.

We have over 6000 consultants and project managers in 110 countries helping clients to realign their IT strategies and make the best use of technology to create or capitalize on business opportunities.

We offer onsite services, Internet and global technology solutions to multi-site, multi-national businesses, including manufacturing, telecommunication, automotive, energy, financial services, and other key industries. Services range from warranty and product support to proactive mission-critical and business continuity services, deployment and performance services, security, integrated support for complex multi-vendor environments and software publishing.

ABOUT HP’s Technology Services: Delivery Operations

HP’s Technology Services: Delivery Operations organization works with our customers to effectively manage their IT needs across their businesses, across the world. Our Field Technical Support Reps, the backbone of our Printer & Personal Systems Services business, are assigned to, and engage in projects at our customers’ sites across a wide variety of industry verticals including Retail, Financial Services, Healthcare, Insurance, and Manufacturing.

The complexity of technology deployment, management, and support is creating demand for evolved technology support service offerings that meet performance, cost, availability, reliability, security, and scalability demands. The appetite for Technology Support Services is expanding rapidly as enterprises of all sizes realize they can’t “do it all”.

About the Field Tech Support Rep I, Printer and Personal Systems

The Field Tech Support Rep I is an entry-level customer-facing role, responsible for visiting multiple customer sites per day, installing and/or replacing equipment in a predefined route, potentially spanning multiple cities and/or states.
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Perform accurate and expedient installation and break/fix while ensuring customer delight, maintaining equipment and vehicle safety, and adhering to an installation schedule.

- Maintain high level Customer satisfaction by clarifying Customer needs and ensuring that they are met
- Handle Customer-related problems promptly and appropriately, escalate issues according to established procedures
- Provide direct post-sales systems technical support to end users and HP Authorized Service Providers
- Solve technical problems on assigned hardware and software platforms
- Use proactive monitoring procedures/tools to identify problem prevention opportunities
- Accountable for company policies and procedures to complete a wide variety of technical and Customer facing tasks
- System level technical knowledge affecting customer business level availability, Independent judgment
- System level affecting HP escalation procedures

Qualifications

Education and Experience Required:

Required Qualifications:

- Possess a Bachelor’s degree and 1-2 year experience in basic troubleshooting skills on printers and PCs, desktops, laptops
- Equal consideration given to those with:
  - an Associate’s degree or Vo-Techn diploma in a technical discipline and 3-5 years experience
  - a high school diploma and 5-7 years hands-on experience in basic troubleshooting on printers and PCs, desktops, laptops
- Well experienced in dealing with customers
- Willingness to work a variable work schedule for deployment/production type work, characterized by extended days and travel
- Ability to read and interpret transportation maps
- Ability to accurately conduct equipment inventory
- Good driving record – Complete travel required
- Ability to satisfy requirements of a Background Investigation and drug screen required

Desired Skills:

- Demonstrates basic problem recognition on common desktop applications and operating systems
- Demonstrates basic network and desktop configuration and installation
- Possesses knowledge of LAN, network concepts, installation, and troubleshooting
- Certification in one or more network operating systems
- Possesses working knowledge of one or more operating systems

Knowledge and Skills:

- Relevant product/company knowledge
- Basic troubleshooting skills
- Basic analytical and communication skills
- Proficient in professional oral and telephone communication skills
- Ability to gather relevant information systematically; and identify needs and solve problems following the instruction
- Ability to maintain ongoing relationships with customers, peers and support partners
- Ability to effectively interact and communicate with people at operational level
- Perform reporting and administrative functions. Manage time effectively

Job - Services
Primary Location - United States-New York-All
Other Locations - United States-Connecticut-All
Schedule - Full-time
Job Type - Experienced
Shift - Day Job
Travel - Yes, 75% of the Time
References and Sources

Ballenstedt, Brittany. “IT Unemployment Rate Half the National Average.” Nextgov as displayed on Mashable, 6 July 2012. Web. 18 December 2012.


