



**Kingsborough Community College/ Brooklyn College  
of The City University of New York**

**Letter of Intent for a Joint Program**

**Business Information Systems, Associate in Arts (A.S.)**

**Information Systems, Bachelor of Science (B.S.)**

**To be jointly offered by**

**Kingsborough Community College**

**Department of Mathematics and Computer Science and Department of Business**

**And**

**Brooklyn College**

**Department of Computer and Information Science**

KCC Contact Person: Dr. Loretta DiLorenzo, [ldilorenzo@kbcc.cuny.edu](mailto:ldilorenzo@kbcc.cuny.edu)

Brooklyn College Contact Person:

KCC College Council Approval: \_\_\_\_\_

Brooklyn College Faculty Council Approval: \_\_\_\_\_

## Table of Contents

	Page
I. Purpose and Goals.....	2
II. Need and Justification.....	3
III. Students (and Enrollment Projections).....	4
IV. Curriculum.....	6
V. Faculty.....	9
VI. Cost Assessment.....	9

## Appendices

- Appendix A Table of Projected Revenues
- Appendix B Table of Projected Expenditures

## **Business Information Systems**

### **I. Purpose and Goals:**

The objective of this proposal is to create a joint degree program in Business Information Systems from A.S. to B.S. This joint A.S./B.S. is designed to prepare students for roles in the new regulatory and financial world using the tools of information technology. The Associate in Science degree is the result of collaboration between the Department of Business and the Department of Mathematics and Computer Science at Kingsborough Community College, and with the Department of Computer and Information Science of Brooklyn College. The curriculum is designed so that graduates of the program will emerge with excellent analytic tools, the academic knowledge and skills necessary to continue their education, earn the Bachelor of Science at Brooklyn College, and seek employment in this high demand field or perhaps advance to masters programs in Business Information Systems.

Students will learn the role of information systems and information technology in business organizations. They will gain an understanding of the models that drive information systems development, and the methods and techniques used to evaluate them.

Brooklyn College offers the Bachelor of Science (B.S.) in Information Systems. This curriculum prepares students for careers in designing, developing, acquiring, deploying, and managing computing systems for use in a business or administrative environment. Increasingly, business workers and managers need to understand computing and information systems, and information technologists need to understand the environment in which their knowledge, skills and services are critical. The proposed A.S. in Business Information Systems interweaves these two areas of specialization to meet today's workplace demands. The proposed associate degree program will prepare students for the existing baccalaureate program in information systems at Brooklyn College with its combination of computer science, computer information systems and

business related curricula. The associate degree program will provide guidance, motivation, and improved skills necessary for success at Brooklyn College and, eventually, success in the world of business and management.

## **II. Need and Justification:**

In today's economy, companies depend critically on information. Corporate value is based on knowledge assets as well as physical resources, financial worth and available capital. Advances in technology have led to the pervasive use of computing to access information. Today's markets are constantly changing, becoming more global and new competitors emerge more frequently than in the past. While technological complexity is increasing, product life-cycles are shortening, and knowledge is consolidating. Such a market demands (1) Innovation in introducing new products (Tidd et al., 2005) (Magleby and Todd, 2005); (2) Innovation management that must address two main challenges, top-line growth and bottom line efficiency (Aggeri and Segrestin, 2007); 3) the assessment of the most appropriate technology according to needs (Libutti, 2000); and 4) management tools with the capacity to implement new information and communication technologies (Lengrand and Chartrie, 1999; Hidalgo, 2004; Thomke, 2006).

The key to achieving flexibility and efficiency is ready access to the right information. To be able to capture and deliver the right information more effectively, manufacturers are consuming information technology products at a rapid pace. [Brousel].

Business Information Systems (BIS) perform three functions: (1) To generate reports-such as financial statements, inventory status reports, or performance reports; (2) To answer what-if questions asked by management. For example, "What would happen to cash flow if the company changes its credit term for its customers?"; and (3) To support decision making by integrating the decision maker, the data, and the quantitative models being used.

Currently, Kingsborough Community College does not offer a curriculum that combines the technical knowledge required of an information systems specialist with the understanding of economics, accounting, general business and marketing theory required for success in today's business firm. The A.S. in Business Information Systems will remedy this gap. The joint BIS /IS programs introduce techniques, models and applications as they are used in the business environment to solve information problems. Learning these applications will provide students with insight into the world of business so that they can pursue careers in relevant business, financial, and computer information fields.

The 2010-2011 U.S. Department of Labor Statistics *Occupational Handbook* reports:

Computer network, systems, and database administrators held about 961,200 jobs in 2008. Of these, 339,500 were network and computer systems administrators, 120,400 were database administrators, and 292,000 were network and data communications analysts. In addition, about 209,300 were classified as "computer specialists, all other," a residual category.

These workers were employed in a wide range of industries. About 14 percent of all computer network, systems, and database administrators were in computer systems design and related services. Substantial numbers of these workers were also employed in telecommunications companies, financial firms and insurance providers, business management organizations, schools, and government agencies. About 7 percent were self-employed.

...Computer network, systems, and database administrators should continue to enjoy excellent job prospects. In general, applicants with a college degree and certification will have the best opportunities.

Offering the A.S. in Business Information Systems/B.S. in Information Systems will provide Kingsborough students the academic and professional skills required to take advantage of these career opportunities.

### **3. Student Interest and Enrollment**

In Fall 2009, there were 266 majors enrolled in the Associate in Applied Science (A.A.S.) in Computer Information Systems and 147 enrolled in the Associate in Science (A.S.) in Computer Science at Kingsborough. The Department of Mathematics and Computer Science offers both

these programs. In Fall 2009, there were 1,295 majors enrolled in the Associate in Applied Science in Business Administration offered by the Department of Business. The faculties of both departments who were involved in the development of the proposed Associate in Science in Business Information Systems see the new proposed curricula as an interdisciplinary approach to information systems education. This new degree will interest students who will prefer to acquire a foundation in business principles and practices while also acquiring a foundation in the mathematics, science and applications of computer technology. A significant cohort of students interested in information management will prefer this emphasis on the business environment over one of the three existing curricula; two programs of study limited to computer-related subject matter or a business degree with limited opportunity within the curriculum to acquire computer – related skills.

The new proposed Associate in Science in Business Information Systems leading to the Bachelor of Science in Information Systems at Brooklyn College is a rigorous curriculum of mathematics, computer science and computer applications, economics, liberal arts and business courses. This plan of study brings together courses in multiple disciplines which, when studied in total, will provide an essential foundation in both business and computer information technologies as well as a foundation in the liberal arts and mathematics. With this foundation, graduates will be ready to succeed in the completion of the Bachelor of Science in Information Systems and will be well on the way to a successful career in information management. Based on this plan, the following enrollments have been projected for the first five years of the program:

### **Table of Enrollment Projections**

Enrollment projections for the A.S. in Business Information Systems for the first five years of the program assume a semester-to-semester persistence rate of 70%.

	Year 1	Year 2	Year 3	Year 4	Year 5
Semester 1	20	25	30	35	40
Semester 2	14	18	21	21	28
Semester 3		10	12	12	19
Semester 4		7	8	8	13
Students/Yr					
Persisting	0	14	14	17	24
New	20	25	30	35	40
Total Majors	20	39	44	52	64

### **4. Curriculum**

The proposed curriculum for the AS in Business Information Systems models both industry standards and the first two years of four-year colleges. Brooklyn College faculty have been consulted throughout the development of the curriculum. Furthermore, discussions are continuing to take place and are now focused on the content of the degree's major courses and how well course content taught at the associate degree level will prepare KCC graduates for Brooklyn's B.S. in Information Systems. These discussions may lead to minor curricular adjustments in preparation for submission of the final proposal.

Within 60 credits required for the completion of the degree, there are three business courses (including one introduction to computer applications course), two computer science courses, an introduction to operating systems course, three mathematics courses, macroeconomics and microeconomics. In addition to these courses within the major; Freshman English I and II, nine credits selected from the Arts, Humanities and Social Sciences, and one laboratory science course fulfill the general education requirements for the degree.

The requirements for the 60-credit Associate in Science are outlined on the following page.

## Associate in Science in Business Information Systems

### Degree Requirements for Matriculants (Total credits: 60)

#### COLLEGE REQUIREMENTS

Successful completion of CUNY/ACT Tests in Reading and Writing and the Mathematics Test with passing examination scores or development courses may be required.

One (1) Writing Intensive course in any discipline is required.

* ENG 12	3 credits
* ENG 24	3
HE 14	1

#### DEPARTMENT REQUIREMENTS

* Macroeconomics (ECO 12)	3
* Microeconomics (ECO 13)	3
Fundamentals of Business (BA 11)	3
Introduction to Computer Concepts (BA 60)	3
Introduction to Accounting (ACC 11)	4
Introduction to Computing (CS 12)	4
Advanced Programming Techniques (CS 13)	4
* Statistics for Business (MAT 22)	4
* Analytic Geometry and Pre-Calculus Mathematics (MAT 14)	4
* Calculus I (MAT 15)	4

#### \* GENERAL EDUCATION REQUIREMENTS - 13 CREDITS

Nine (9) credits from Groups A and B: A minimum of three (3) credits from each group plus three (3) more credits in another discipline from either Group A or B.

A. Arts and Humanities 3 - 6 credits  
Disciplines: Art - Foreign Language - Literature - Music - Philosophy - Speech - Theatre Arts – Film & Media Studies (*Excluded* are Art *studio*, Music *studio*, Theatre *production & skills* courses)

B. Behavioral and Social Sciences 3 - 6 credits  
Disciplines: Anthropology - History - Political Science - Psychology - Sociology

C. Mathematics and Sciences 4 credits  
A laboratory science course selected from: Biology - Chemistry - Earth & Planetary Science – Physics

**ELECTIVES** – Four (4) credits to meet required total of..... 60 credits.

---

\* Liberal Arts and Sciences coursework totals 37 credits



## Bachelor of Science in Information Systems

### Degree Requirements for Matriculants (Total credits: 60)

For KCC students who transfer with the Associate in Science in Business Information Systems the requirements for the Bachelor of Science in Information Systems at Brooklyn College are as follows:

A minimum grade of [C -] in all major business courses and a minimum grade of C in all major CIS and CS courses within the A.S. in Business Information Systems are required for admission into the B.S. in Information Systems.

\*Two Upper Tier Core Studies Courses 6 credits  
\*Modern Language unless exempt 0-9 credits

---

Subtotal 6 - 15 credits

---

CISC 3130 - Data Structures	4 credits
CISC 3810 – Databases	3 credits
*CISC 2820 – Computers and Ethics	3 credits
CISC 3120 - Software Applications I	3 credits
CISC 3150 - Object Oriented Programming	3 credits
CISC 4900 or CISC 5001 - Project or Research	3 credits

Two advanced electives selected from:

CISC 3140, 3171, 3340, 3345, 3410, 3800, 3820 6 credits

CISC 2532/BUSB 2432 (Project Management) or CISC 1530/BUSN 3120 (E-Commerce)	3 credits
CISC 1590/BUSN 3420 – MIS	3 credits
CISC 2531/BUSN 3430 Operations Management	3 credits
CISC 1580/BUSN 4202 - Management Games	3 credits
BUSN 3310 - Financial Management	3 credits

---

Subtotal: 40 credits

---

Elective courses in any discipline, department or program: 5 - 14 credits

---

Total: 60 credits

---

\* Liberal Arts

## **Faculty**

All the courses for the new proposed A.S. curriculum are existing courses. Based on the enrollment projections for the first five years of the program and the seats currently available in offered sections of these courses, it is expected there will be no need for additional full-time faculty. By the third year there may be need for additional sections of the more advanced selected courses of the curriculum, and the cost of these additional sections is reflected in the adjunct teaching costs projected by the third year.

Professor Igor Balsim of the Department of Mathematics and Computer Science initiated the development of the proposed curriculum, prepared early drafts of the Letter of Intent and worked with Brooklyn College faculty to design the four year A.S./B.S. curriculum. Professor Balsim may require some reassigned time in order to advise and mentor majors, assess and review program outcomes and continue to interact with BIS faculty of Brooklyn College. This will be determined following implementation of the approved program and will be based on the development of the program over the first five years. To accommodate this possibility, adjunct replacement costs totaling four (4) semester hours has also been included in the Table of Projected Expenditures.

## **Cost Assessment**

Other than the possibility of additional course sections or reassigned time, there are no additional costs projected for the new A.S. curriculum. Budget planning will accommodate new library acquisitions to support the new curriculum within the College funds allocated to the Kibbee Library each year. Courses in the major requiring a computer laboratory are already accommodated in existing facilities.

## References

1. Aggeri, F. and Segrestin, B. (2007). Innovation and project development: an impossible equation? Lessons from an innovative automobile project development. *R&D Management*, **37**(1), 3747.
2. Bakos, J.Y. and Kemerer, C.F. (1992) "Recent Applications of Economic theory in Information Technology Research", *Decision Support Systems*, 365-386.
3. Barkmeyer, E. J., Feeney, A. B., Denno, P., Flatter, D.W. , Libes, D. E., Steves, M. P., & Wallace, E. K. (Feb. 2003) concepts for Integrating System Integration, National Institute of Standards & Technology. Technology Administration, U.S. Department of Commerce.
4. Boulding, K. E., (1996). The economics of knowledge and the knowledge of economics. *The American Economic Review*, **56**, 1-13.
5. Brousell, D.(October 2001) "The Integrated Enterprise Moves Closer to Reality," *Managing Automation*, **16**(10). New York, NY: Thomas Publishing Co, 26-30.
6. Cordero, R. (1991). Managing for Speed To Avoid Product Obsolescence: A Survey of Techniques. *Journal of Product Innovation Management*, **8**(4), 283-294.
7. Elliot, G. (2004) *Global Business Information Technology*. London: Addison- Wesley.
8. A Guide to the Business Analysis Body of Knowledge version 1.6 (2006) *International Institute of Business Analysis* [http:// www.theiiba.org](http://www.theiiba.org)
9. Hidalgo, A. (2004). *Innovation management and the Knowledge-Driven Economy*. Brussels-Luxembourg : European Commission.
10. Hidalgo, A. & Albors, J. New Innovation Management Paradigms in the Knowledge-Driven Economy in Sherif, M. H. & Khalil, T. M. ed. *Management of Technology Innovation and Value Creation* (2008) Selected Papers from the 16th International Conference on Management of Technology, Singapore: World Scientific Publ. Pte. Ltd.
11. 2009 IT Skills and Salary Report  
[http://www.netacadadvantage.com/pub/TechRep\\_Global\\_Knowledge\\_2009\\_IT\\_Skills\\_Salary.pdf](http://www.netacadadvantage.com/pub/TechRep_Global_Knowledge_2009_IT_Skills_Salary.pdf) Retrieved Jan. 18, 2010.
12. Lengrand, L. and Chartrie, I. (1999). *Business Networks and the Knowledge-Driven Economy*. Brussels: European Commission.
13. Libutti, L. (2000). Building competitive skills in small and medium-sized enterprises through innovation management. *Journal of Information Science*, **26**(6), 83-95.
14. Magleby, S.P. and Todd, R.H. (2005). Creating a Successful Capstone Program by Considering the Needs of Stakeholders. *European Journal of Engineering Education*, **30**(2), 203 - 214.
15. Maskell, P. (1999). *Social Capital, Innovation and Competitiveness*. Oxford: Oxford University Press.
16. Stiglitz, J.E. (2000) "The Contributions of the Economics of Information to Twentieth Century Economics", *Quarterly Journal of Economics*, 1441-1479.
17. Thomke, S. H. (2006). Capturing the real value of innovation tools topic: management of technology and innovation. *MIT Sloan Review*, **2**, 24-32.
18. Tidd, J., Bessant, J. and Pavitt, K. (2005). *Managing Innovation: Integrating Technological, Market and Organizational Change*. Hoboken, N.J.: John Wiley & Sons.