

KINGSBOROUGH



Letter of Intent

For an

A.S. in Chemistry

Forensic Science Studies Concentration

Offered by the  
Department of Physical Sciences

To be jointly registered with the B.S. in  
Forensic Science

of

John Jay College of Criminal Justice

*Attachment J.*

## 1. Purpose and Goals

The primary purpose of Kingsborough's A.S. in Chemistry (Concentration in Forensic Science Studies) will be to provide graduates with a strong foundation in higher education and a quality preparation for the successful pursuit of the B.S. in Forensic Science offered at John Jay College of Criminal Justice. John Jay College has initiated an institutional plan designed to enhance the academic experience and learning outcomes of its undergraduates. It is doing so not alone, but in partnership with the community colleges of CUNY.

Over four years, John Jay will phase out its associate degree programs so that it can focus its attention on baccalaureate and graduate level students. Simultaneously, John Jay will develop joint degree programs with the community colleges of CUNY. Kingsborough Community College is committed to becoming an active and helpful partner in building an outstanding A.S./B.S., jointly registered with John Jay.

Kingsborough's A.S. in Chemistry (Concentration in Forensic Science Studies) curriculum is designed to offer students a quality associate degree education with a strong foundation in a range of science disciplines suitable for the pursuit of any baccalaureate science degree but particularly one in forensic science.

The Forensic Science Studies concentration curriculum reflects the interdisciplinary nature of the field, which involves the collection, examination, evaluation and interpretation of evidence. The graduate will have an opportunity to transfer seamlessly to John Jay College of Criminal Justice, one of the world's forensic science leaders.

## II. Need

Forensic science is the application of science to assist courts in resolving questions of fact in criminal and civil trials. Forensic scientists work in laboratories, at crime scenes, in offices, and in morgues. They may work for police departments, sheriff's offices, district attorney's offices, regional and state agencies, medical examiners' offices, private companies and for federal agencies such as the Drug Enforcement Administration (DEA), Bureau of Alcohol, Tobacco and Firearms (ATF), Federal Bureau of Identification (FBI), United States Postal Service (USPS), Secret Service (SS), Central Intelligence Agency (CIA), the military forces, and the United States Fish and Wildlife Services. Essentially every branch of forensic science offers opportunities for personal growth, career advancement, and increasing financial compensation. Income is dependent on specialty and geographical area and generally is increasing for the well-trained forensic scientist. Although forensic pathologists cannot perform all of the miracles seen in television shows, it is an interesting and exciting field and is becoming a more popular and competitive career choice.<sup>1</sup>

John Jay College is the only college in the United States devoted exclusively to criminal justice and public service and is recognized internationally as a leader in criminal justice education and

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<sup>1</sup>The American Academy of Forensic Sciences web site (<http://www.aafs.org>).

research. Following a comprehensive analysis, John Jay College has concluded that the scope of degrees offered, including baccalaureate and graduate degrees, dilutes the College's efforts and stretches resources essential for supporting the academic needs of associate degree students. As an alternate strategy for strengthening undergraduate preparation for a career in criminal justice, John Jay will utilize the strengths of its sister CUNY institutions, the community colleges, where the academic success of associate degree students is the sole mission and there is no other mission competing for resources and attention

The largest number of John Jay transfer students comes from five institutions and KCC is one of the five. Kingsborough can better serve particularly nontraditional students interested in transfer to John Jay by promoting and offering a joint program in chemistry/forensic studies so that they can be identified early, mentored toward this highly specialized career goal and become fully prepared to succeed upon transfer to John Jay. Through the close collaboration required for the joint registration of these programs, students will benefit from the strengths of both institutions.

### **III. Students**

#### **A. Potential Majors**

Kingsborough Community College serves a diverse student population and ranks among the top community colleges in the country in associate degrees awarded to minority students. During 2004-2005, Kingsborough had a total credit enrollment of 15,266 students of which 10,751 were matriculated in a degree program. Of these, 4,082 (37.8%) were Liberal Arts majors. When surveyed, seventy-four percent of degree students gave the transfer to a senior college as their primary goal. Currently, there are about thirty majors enrolled in the A.S. in Chemistry.

In Fall 2006: *General Chemistry I and II* had a combined student enrollment of 196; and *General Biology I and II* had an enrollment of 309. Students enrolled in these courses are mainly Biology majors followed by Liberal Arts and then Engineering Science majors. Students majoring in Biology or Engineering Science are highly motivated to pursue careers in medicine and related professions as well as engineering. The baccalaureate and post-baccalaureate programs for which they must prepare are highly competitive and academically rigorous. An A.S. in Chemistry with a concentration in forensic science studies will provide another option for these students to consider.

Students who would otherwise attend John Jay's associate programs will no longer have this option in the future. As planned, these students, particular those residing in Brooklyn, will be a major source of new enrollment for the Forensic Science Studies concentration.

#### **A. Learning Communities of Criminal Justice Majors**

Kingsborough Community College has recently emerged as a leader in the implementation of successful learning communities for first-time freshmen particularly those who need to build college-level writing skills. The Kingsborough model has a strong student support component which is fully integrated within the academic program.

Tutors, counselors, advisors and case managers work closely with faculty and academic program directors to achieve the goals of the learning communities program:

- o Build a sense of community among students
- o Enhance learning - particularly active learning and reflection
- o Foster connections between students and their instructors as well as support personnel on campus
- o Improve academic and writing skills and exit remediation quickly
- o Increase retention

Participants in KCC's Opening Doors (non-ESL) Learning Communities Program pass the ACT writing exam on re-test at a significant higher rate than non-Learning Communities first-time freshmen. Five percent more Fall 2005 first-time freshmen who participated in Opening Doors initially failed the ACT writing exam than all other first-time freshmen (59.1% failed versus 45.1%). However, upon re-test, eight percent more Learning Communities participants passed the ACT writing than non-Learning Communities test-takers (67.8 % versus 59.6). The first-semester to second-semester retention rate for Learning Communities participants was 6% higher than non-Learning Communities freshmen.

**Kingsborough Community College  
Opening Doors Learning Communities (ODLC)  
Fall 2005 First Time Freshmen  
Enrolled in Eng91, Eng92, Eng93 or Eng12  
Initial Skills Tests & Fall 2005 Retest Passing Rates**

Freshmen Category	Initial Writing Skills Tests				
	Pass/Exempt		Fail		Total
	#	%	#	%	
ODLC	149	40.9%	215	59.1%	364
All other First Time Freshmen	492	45.9%	579	54.1%	1071
<b>Total Tested Freshmen</b>	<b>641</b>	<b>44.7%</b>	<b>794</b>	<b>55.3%</b>	<b>1435</b>

Freshmen Category	Fall 2005 Writing Skills Tests				
	Pass/Exempt		Fail		Total
	#	%	#	%	
ODLC	59	67.8%	28	32.2%	87
All other First Time Freshmen	165	59.6%	112	40.4%	277
<b>Total Tested Freshmen</b>	<b>224</b>	<b>61.5%</b>	<b>140</b>	<b>38.5%</b>	<b>364</b>

Kingsborough Community College  
 Opening Doors Learning Communities (ODLC)  
 Fall 2005 First Time Freshman  
 Enrolled in Eng91, Eng92, Eng93 or Eng12  
 Fall to Spring Retention Rates

Freshman Category	Fall 2005 Enrolled #	*Spring 2006 Still Enrolled	
		#	%
ODLC	366	325	88.8%
All Other First Time Freshman	1096	905	82.6%
<b>Total Freshman</b>	<b>1462</b>	<b>1230</b>	<b>84.1%</b>

Note: Spring 2006 figures are based on the Spring 2006 Show Registration preliminary file.

To repeat these enhanced learning outcomes for A.S. in Chemistry, KCC will work closely with John Jay enrollment management and student development personnel to (1) identify and recruit students into KCC's program who would otherwise have attended John Jay's associate degree program and (2) enroll first-time freshmen A.S. in Chemistry (Concentration in Forensic Science Studies) majors into KCC's learning communities program with the goal of creating and sustaining a cohort of future transfers to John Jay who are prepared to succeed.

#### IV. Curriculum

The proposed curriculum has been designed to best match the freshman and sophomore curriculum at John Jay. The major draws primarily from chemistry (organic and analytical) with courses in biology, physics and law. Kingsborough's curriculum has a total of 26 credits in chemistry and physics, 8 credits in biology, 8 credits in mathematics, 9 credits in General Education Distribution Requirements and 7 credits in college-wide general requirements. This required course work totals 58 credits. Students can apply any other college coursework toward the 60-credit degree.

CUNY articulation policy ensures that transfers from Kingsborough who have earned an A.S. degree will have met all John Jay general education requirements except for foreign language and one course in a John Jay general requirement discipline not taken previously by the student. The A.S. in Criminal Justice curriculum is designed to meet 34 out of John Jay's current 37-credit minimum general education distribution requirement.

The general education core and distribution for Kingsborough's A.S. Chemistry consists of the following list of courses. Each is equivalent<sup>2</sup> to a specific John Jay general education core or distribution requirement:

<sup>2</sup> As per CUNY TIPPS.

**General Education (non-major) Course Equivalencies**

<b>Crs. # KCC</b>	<b>Crs. KCC</b>	<b>Crs. KC C</b>	<b>Crs. # JJ</b>	<b>Crs. JJ</b>	<b>Crs.# JJ</b>
BIO 13	General Biology I	4	BIO 103	Modern Biology I	4
BIO 14	General Biology II	4	BIO 104	Modern Biology II	4
CHM 11	General Chemistry I	4	CHE 103	General Chemistry I	5
CHM 12	General Chemistry II	4	CHE 104	General Chemistry II	5
CHM 31	Organic Chemistry I	5	CHE 201	Organic Chemistry I	4
CHM 32	Organic Chemistry II	5	CHE 202	Organic Chemistry II	4
PHY 13	Advanced General Physics I	4	PHY 203	General Physics I	4
PHY 14	Advanced General Physics II	4	PHY 204	General Physics II	4
MAT 15	Calculus I	4	MAT 241	Calculus I	3
MAT 16	Calculus II	4	MAT 242	Calculus II	3
ENG 12	English Composition I	4	ENG 101	College Composition I	3
ENG 24	English Composition II	3	ENG 102	College Composition II	3
	ENG32or ENG35or PHI71or PHI72or HIS52or HIS31or POL 51	3	LIT231 or232 or PHI231or HIS231or232 or GOV 101	Meets General Education Req.	3
	ANT37 or PSY11 or SOC31	3	ANT101, or PSY101, or SOC101	Meets General Education Req.	3
SPE 21	Effective Public Speaking	3	SPE 113	Meets General Education Req.	3
	Elective	2			
	<b>Total</b>	<b>60</b>			

KINGSBOROUGH COMMUNITY COLLEGE  
The City University of New York

A.S. Chemistry  
Concentration in Forensic Science Studies

<b>MAJOR REQUIREMENTS*</b>		
<b>Course No.</b>	<b>Course Title</b>	<b>Credits</b>
<b>Department Requirements</b>		
CHM 11	General Chemistry I	4
CHM 12	General Chemistry II	4
CHM 31	Organic Chemistry I	5
CHM 32	Organic Chemistry II	5
PHY 13	Advanced General Physics I	4
PHY 14	Advanced General Physics II	4
	<b>Total</b>	<b>26</b>
BIO 13	General Biology I	4
BIO 14	General Biology II	4
	<b>Total</b>	<b>8</b>
MAT 15	Calculus I	4
MAT 16	Calculus II	4
	<b>Total</b>	<b>8</b>
<b>College Requirements</b>		
ENG 12	Freshman English I	4
ENG 24	Freshman English II	3
	<b>Total</b>	<b>7</b>
<b>Distribution Requirements</b>		
ENG32orENG35or PHI71or PHI 72or HIS52orHIS31or POL 51	Literature, Philosophy, History or Political Science	3
ANT37, PSY 11, or SOC 31	Anthrop., Psych. Or Soc.	3
SPE 21	Effective Public Speaking	3
	<b>Total</b>	<b>9</b>
Elective		2
	<b>TOTAL</b>	<b>60</b>

**V. Faculty**

The Department of Physical Sciences faculty is exemplary in their scholarship and teaching. The Department is chaired by Dr. John

Mikalopas. Professor Mikalopas is a proactive and energetic academic leader who has created a supportive and collegial environment in which faculty and subsequently students can thrive.

Dr. Gregory Aizin teaches Advanced General Physics. His research activity includes research in solid state physics and nano-technology. He is the recipient of grants from the DOD and NSF and has numerous publications.

Dr. Patrick Lloyd teaches General Chemistry. He works on environmental and bio-analytical methods. Currently, he is developing enzymatic methods for bleaching paper dyes and biosensors for dissolved oxygen gas. He is the PI and Co-PI on several NSF educational grants.

Dr. Jay Mancini teaches Advanced General Physics. He was former Chair of the Department of Physics at Fordham University. He has numerous publications in solid state physics.

Dr. Varratur Reddy teaches Organic Chemistry courses that include spectroscopic techniques such as Infrared and Nuclear Magnetic Resonance Spectroscopy. His research activity involves the synthesis and characterization of biologically active compounds and chiral catalysts.

Dr. Kathryn Reinhard teaches General and Organic Chemistry. She is involved in implementing instructional technology into the course curriculum. Her research interests include the design and synthesis of targeted drug delivery systems.

Dr. Hanying Xu teaches General and Organic Chemistry. His primary research interests lie in understanding and predicting organic reaction mechanisms, reactive intermediates, highly strained organic molecules, and other fundamental principles in Organic Chemistry. His research is funded by supercomputing time available at National Center for Supercomputing Applications (known as NCSA).

The Department of Physical Sciences faculty is enthusiastic about developing an educational partnership with John Jay faculty for the purpose of preparing A.S. in Chemistry graduates who will pursue the B.S. in Forensic Science. We are confident that KCC graduates will become outstanding John Jay graduates and succeed in this demanding field.



**KINGSBOROUGH COMMUNITY COLLEGE**  
**The City University of New York**

**CURRENT**

**A.S. CHEMISTRY•**

Requirements for Matriculants

**Total credits: 60**

**COLLEGE REQUIREMENTS**

Successful completion of CUNY/ACT Tests in Reading and Writing and the COMPASS Math Skills Test with passing examination scores or developmental courses may be required.

ENG 01200	4	credits
ENG 02400	3	
HPE 01200	3	

**DEPARTMENT REQUIREMENTS §**

General Chemistry I and II (CHM 01100-01200)	8	credits
Organic Chemistry I and II (CHM 03100-03200)	10	
Advanced General Physics I and II (PHY 01300-01400)	8	
Calculus I and II (MAT 01500-01600)	8	

**GROUP REQUIREMENTS \*\*9 CREDITS**

A minimum of three credits each selected from at least three different groups, I thru IV. Courses selected must be Basic Courses.

- I. Performing and Visual Arts  
(Excluded are Art & Music Studio, Theatre Production & Technique Courses)  
Art - Music - Speech - Theatre Arts
- II. Language and Literature  
Foreign Language - Literature - Philosophy
- III. Social Sciences  
Economics - History - Political Science
- IV. Behavioral Sciences  
Anthropology - Psychology - Sociology
- V. Mathematics and Sciences (Satisfied by Department Requirements)  
Biological Sciences - Mathematics & Computer Science - Physical Sciences

**ELECTIVES - Sufficient to meet required total of**

**60- 64 credits**

- This program is within the Physical Sciences Department
- § Consultation with Department Advisor is required.

**KINGSBOROUGH COMMUNITY COLLEGE**  
**The City University of New York**

**PROPOSED: For joint program with B.S. in Forensic Science Studies, John Jay College**

**A.S. CHEMISTRY•**

Requirements for Matriculants

**Total credits: 60**

COLLEGE REQUIREMENTS

Successful completion of CUNY/ACT Tests in Reading and Writing and the COMPASS Math Skills Test with passing examination scores or developmental courses may be required.

ENG 01200	4	credits
ENG 02400	3	
HPE 01200 ( <i>not required for Forensic Science Studies Concentration</i> )	0-3	

DEPARTMENT REQUIREMENTS §

General Chemistry I and II (CHM 01100-01200)	8	credits
Organic Chemistry I and II (CHM 03100-03200)	10	
Advanced General Physics I and II (PHY 01300-01400)	8	
Calculus I and II (MAT 01500-01600)	8	

***For Jointly Registered Program with John Jay College, B.S. in Forensic Science Studies:***

General Biology I and II (BIO 01300—01400) 8

***Choose from the following to satisfy Groups I, II and III:***

ENG 03200 or 03500 or PHI 07100 or 07200 or HIS 03100 or 05200 or POL 05100

ANT 03700, PSY 01100 or SOC 03100

Effective Public Speaking (SPE 02100)

GROUP REQUIREMENTS \*\*9 CREDITS

A minimum of three credits each selected from at least three different groups, I thru IV. Courses selected must be Basic Courses.

- I. Performing and Visual Arts  
 (Excluded are Art & Music Studio, Theatre Production & Technique Courses)  
 Art - Music - Speech - Theatre Arts
- II. Language and Literature  
 Foreign Language - Literature - Philosophy
- III. Social Sciences  
 Economics - History - Political Science
- IV. Behavioral Sciences  
 Anthropology - Psychology - Sociology
- V. Mathematics and Sciences (Satisfied by Department Requirements)  
 Biological Sciences - Mathematics & Computer Science - Physical Sciences

**ELECTIVES – 2-7 credits dependent on department requirements completed**

**60- 64 credits**

- This program is within the Physical Sciences Department
- § Consultation with Department Advisor is required.