



JOHN JAY COLLEGE
THE CITY UNIVERSITY OF NEW YORK
OF CRIMINAL JUSTICE

**Kingsborough Community College/John Jay College of Criminal Justice
of the City University of New York**

Letter of Intent for a Joint Program

**Science for Forensics, Associate in Science (A.S.)
Forensic Science, Bachelor of Science (B.S.)**

To be jointly offered by

Kingsborough Community College and John Jay College of Criminal Justice

**Department of Physical Science
Kingsborough Community College
John Mikalopas, Ph.D, Chairperson**

**Department of Sciences
John Jay College of Criminal Justice
Lawrence Kobilinsky, Ph.D., Chairperson**

KCC: Contact Person: Dr. Loretta DiLorenzo, ldilorenzo@kingsborough.edu

JJC: Dr, David Barnet, dbarnet@jjay.cuny.edu

KCC College Council (governance) Approval:

Proposed Start Date: Fall 2010

Attachment A

I. Purpose and Goals

This proposal is for the dual/joint Associate in Science (A.S.) in Science for Forensics /Bachelor of Science (B.S.) in Forensic Science. The A.S. in Science for Forensics, which will be offered by Kingsborough Community College, will provide students with a strong foundation in general and organic chemistry, general biology, physics, and calculus. The curriculum also provides a solid general education and students will graduate with the critical reading, research and writing skills necessary for academic success. The B.S. in Forensic Science is designed to provide academic and professional training for students seeking to work in forensic science laboratories as either researchers or administrators, or who are planning to pursue careers as research scientists, teachers or medical professionals. The junior and senior year curriculum includes physical and biochemistry, instrumental analysis, Law and Evidence, general education/liberal arts requirements and a selection of one of the following areas of specialization; Criminalistics, Toxicology or Molecular Biology.

Interest in forensic science has increased greatly and this interest has brought students to John Jay who are not prepared to master the science and mathematics needed to succeed in this curriculum. John Jay College has initiated an institutional plan that includes forging partnerships with the community colleges of CUNY in the hope that this will help more students to succeed in this area of strong interest than would otherwise be possible by one institution's efforts alone.

Kingsborough already offers the A.S. in Chemistry which 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 and particularly one in chemistry. Similarly, the curriculum of the proposed A.S. in Science for Forensics reflects the multi-disciplinary nature of the field, which involves the collection, examination, evaluation and interpretation of evidence, and will provide a seamless transition into the B.S. in Forensic Science major at John Jay College.

II. Need

Forensic science involves the application of scientific method to the analysis of physical evidence in the service of formal public deliberations and discussions that involve disputes over questions of fact – most notably in the context of criminal and civil courts of law. Forensic scientists work in laboratories and in the field (e.g., at crime scenes). 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 career advancement and increasing financial compensation. Income is dependent on degree earned, specialty and geographical area, and 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.¹

John Jay College of Criminal Justice is a liberal arts college dedicated to education, research and service in the fields of criminal justice, fire science and related areas of public safety and public service. It is recognized internationally as a leader in criminal justice education and research. To foster greater undergraduate preparation for a career in forensics, John Jay will utilize the strengths of its sister CUNY institutions, the community colleges. 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 in this very rigorous curriculum upon transfer to John Jay. Through the close collaboration required for the joint registration of this program, 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. As of Fall 2007, Kingsborough had a total credit enrollment of 14,962 students of which 10,945 were matriculated in a degree program. Of these, 4,517 (41.2%) 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 37 majors enrolled in the A.S. in Chemistry, 772 in Biology, 126 in Engineering Science, 55 in Mathematics and 15 Physics majors.

In Fall 2007: *General Chemistry I and II* had a combined student enrollment approaching 200; and *General Biology I and II* had an enrollment of over 300. 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 related but alternative professions to those of medicine or engineering. The baccalaureate and post-baccalaureate programs for which they must prepare are highly competitive and academically rigorous. The joint A.S. in Science for Forensics/B.S. in Forensic Science will provide another career path for these students to pursue.

B. Learning Communities

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:

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

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

The results of an independent evaluation of over 1,500 students over four Fall semesters show that the participants in KCC Learning Communities were nearly 11% more likely to pass a Developmental English course. Of those who re-took the CUNY Writing exam, approximately 6% more Learning Community participants passed than the non-participating control group. Other outcomes include the greater accumulation of credits and higher grade point averages for participants.

To repeat these enhanced learning outcomes for the A.S. in Science for Forensics majors, KCC will work closely with John Jay enrollment management and student development personnel to enroll first-time freshmen A.S. in Science for Forensics 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.

C. Enrollment Projections

	2009-2010		2010-2011		2011-2012		2012-2013		2013-2014	
	New	Continuing	New	Continuing	New	Continuing	New	Continuing	New	Continuing
Full-Time	15		15	10	20	17	20	16	25	15
Part-Time	10		10	7	12	12	12	16	15	12
	25		25	17	32	29	32	32	40	27
TOTAL	25		42		61		64		67	

Projections are based on an annual attrition of 33% which was calculated for each subsequent year for both full-time and part-time.

Beginning in the third year, for full-time continuing students only, a 25% graduation rate was added to the 33% attrition. The 25% graduation rate was added for part-time continuing students in the fifth year.

IV. Curriculum

The proposed curriculum has been designed to match as far as possible the foundation science courses in the freshman and sophomore curriculum of the B.S. in Forensic Science at John Jay. The major draws primarily from chemistry (organic and analytical) with courses in biology, physics and calculus. Kingsborough's curriculum has a total of 26 credits in chemistry and physics, 8 credits in biology, 8 credits in mathematics, 7 credits in Freshman Composition and 9 credits in liberal arts distribution requirements. This required course work totals 58 credits allowing students to apply two credits of 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 Science for Forensics curriculum is designed to meet 23 out of John Jay's current 37-credit minimum general education distribution requirement. This includes John Jay's English 101 and 102 requirement (6 credits), Natural Science and laboratory science elective (8 credits) and three other general education courses which could be Speech, History, Philosophy, Literature or Social Science (9 credits).

Given the academic rigor of the B.S. in Forensic Science curriculum, John Jay College faculty and course leaders have agreed that students should be required to achieve a cumulative grade point average in the foundation science coursework of a 2.5 or greater (on a 4.0 scale) to enter the junior year of study in Forensic Science at John Jay. Furthermore, it has been recommended that John Jay College adopt a continuation standard for its students of 2.5 in the science major. Therefore, to ensure that A.S. in Science for Forensics graduates are fully prepared to succeed in the major's junior and senior years, a 2.5 GPA in the 42 credits of department requirements in biology, chemistry, physics and calculus has been included as a requirement for the A.S. degree.

The curriculum requirements are as follows:

KINGSBOROUGH COMMUNITY COLLEGE

A.S. in Science for Forensics

Course No.	Course Title	Credits
College Requirements		
ENG 12	Freshman English I	4
ENG 24	Freshman English II	3
	Sub-total	7
Department Requirements		
A cumulative grade point average of 2.5 is required in the following 32 credits of science:		
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
	Sub-total	26
BIO 13	General Biology I	4
BIO 14	General Biology II	4
	Sub-total	8
MAT 15	Calculus I	4
MAT 16	Calculus II	4
	Sub-total	8
Distribution Requirements		
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
	Sub-total	9
Elective		
		2
	TOTAL	60

The following list of courses shows the John Jay equivalency for each course in the Kingsborough A.S. in Science for Forensics curriculum. Each is equivalent² to a specific John Jay core or general education distribution requirement:

Course Equivalencies

KCC Course	KCC Course Title	KCC Crs.	JJ Course	JJ Course Title	JJ Crs.	Crs. Given
BIO 13	General Bio I	4	BIO 103	Modern Bio I	4	4
BIO 14	General Bio II	4	BIO 104	Modern Bio II	4	4
CHM 11	General Chem I	4	CHE 103	General Chem I	5	4
CHM 12	General Chem II	4	CHE 104	General Chem II	5	4
CHM 31	Organic Chem I	5	CHE 201	Organic Chem I	4	4 [+1 elective]
CHM 32	Organic Chem II	5	CHE 202	Organic Chem II	4	4 [+1 elective]
PHY 13	Adv. General Physics I	4	PHY 203	Gen. Physics I	4	4
PHY 14	Adv. General Physics II	4	PHY 204	Gen. Physics II	4	4
MAT 15	Calculus I	4	MAT 241	Calculus I	3	3 [+1 elective]
MAT 16	Calculus II	4	MAT 242	Calculus II	3	3 [+1 elective]
ENG 12	English Composition I	4	ENG 101	College Composition I	3	3 [+1 elective]
ENG 24	English Composition II	3	ENG 102	College Composition II	3	3
	ENG32or ENG35or PHI71or PHI72or HIS52or HIS31or POL 51	3	LIT231 or232 or PHI231or HIS231or232 or GOV 101	Meets General Education Req.	3	3
	ANT37 or PSY11 or SOC31	3	ANT101, or PSY101, or SOC101	Meets General Education Req.	3	3
SPE 21	Effective Public Speaking	3	SPE 113	Meets General Education Req.	3	3
	Elective	2		Elective or blanket credit	2	2
	Total	60			57	60

² As per CUNY TIPPS.

A.S. in Science for Forensics

Full-Time Plan of Study

Freshman Year

Fall 1

Crs.

English 12 4
 BIO I 4
 CHM I 4
 4
 12

Fall/Winter 1

SPE 21 3

Spring 1

English 24 3
 BIO II 4
 CHM II 4
 Distrib. Req. 3
 3
 14

Sophomore Year

Fall 2

Crs.

ORG CHM I 5
 Calculus I 4
 Physics I 4
 4
 13

Fall/Winter 2

Distrib. Req. 3

Spring 2

ORG CHM II 5
 Calculus II 4
 Physics II 4
 Elective 2
 2
 15

Part-Time Plan of Study

<u>Fall 1</u>			<u>Fall 3</u>	
English 12	<u>Crs.</u>			<u>Crs.</u>
BIO I	4		ORG CHM I	5
	4			
	8			
<u>Fall/Winter 1</u>			<u>Fall/Winter 3</u>	
SPE 21	3		Distrib. Req.	3
<u>Spring 1</u>			<u>Spring 3</u>	
English 24	3		ORG CHM II	5
BIO II	4			
	7			
<u>Fall 2</u>			<u>Fall 4</u>	
CHM I	4		Physics I	4
Calculus I	4			
	8			
<u>Fall/Winter 2</u>				
Distrib. Req.	3			
<u>Spring 2</u>			<u>Spring 4</u>	
CHM II	4		Physics II	4
Calculus II	4		Elective	2
	8			

B. S. in Forensic Science Plan of Study at John Jay

Under the two plus two arrangement, students who complete the A.S. degree program in Science for Forensics and meet all the requirements will move seamlessly into the B.S. program in Forensic Science at John Jay. The total number of credits for the Baccalaureate Degree in Forensic Science at John Jay is 120. The following courses will be required beyond the A.S. in Science for Forensic Science, and will be taken at John Jay College:

SUMMER					
COURSE TITLE		Credits			
CHE 220 – Quantitative Analysis		4			
JUNIOR YEAR: FALL		JUNIOR YEAR: SPRING			
COURSE TITLE		Credits			
CHE 302 Physical Chemistry II		3			
CHE 320 Instrumental Analysis I		4			
Select one of the following: <ul style="list-style-type: none"> • LIT 230 Classical Literature <i>or</i> • LIT 231 Medieval and Early Modern Literature <i>or</i> • LIT 232 Modern Literature <i>or</i> • LIT 233 American Literature <i>or</i> • PHI 231 Knowing, Being and Doing: Philosophical Method and Its Applications 		3			
LAW 202 Law and Evidence		3			
		Choose one track: Criminalistics Track: <ul style="list-style-type: none"> • FOS 313 An Introduction to Criminalistics for Forensic Science majors <i>or</i> Toxicology Track: <ul style="list-style-type: none"> • TOX 313 Toxicology of Environmental and Industrial Agents <i>or</i> Molecular Biology Track: <ul style="list-style-type: none"> • BIO 315 Genetics 		3	
Total Credits		13			
		Total Credits			
Total Credits Summer, Fall and Spring terms		31			

SENIOR YEAR: FALL		SENIOR YEAR: SPRING	
COURSE TITLE	Credits	COURSE TITLE	Credits
Foreign Language requirement*	3	Foreign Language requirement*	3
Liberal Arts electives	5	Liberal Arts electives	7
Continue track of choice:	7	Continue track of choice:	4
<i>either</i> Criminalistics Track <ul style="list-style-type: none"> • Select one from: <ul style="list-style-type: none"> ○ FOS 401 Forensic Science Laboratory Internship (3)** ○ <i>or</i> FOS 402 Undergraduate Research (3)** • FOS 415 Forensic Science Laboratory I (4) 		<i>either</i> Criminalistics Track: <ul style="list-style-type: none"> • FOS 416 Forensic Science Laboratory II (4) 	
<i>or</i> Toxicology Track <ul style="list-style-type: none"> • Select one from: <ul style="list-style-type: none"> ○ FOS 401 Forensic Science Laboratory Internship (3)** ○ <i>or</i> FOS 402 Undergraduate Research (3)** • TOX 415 Forensic Pharmacology (4) 		<i>or</i> Toxicology Track: <ul style="list-style-type: none"> • TOX 416 Analytical Toxicology (4) 	
<i>or</i> Molecular Biology Track <ul style="list-style-type: none"> • Select one from: <ul style="list-style-type: none"> ○ FOS 401 Forensic Science Laboratory Internship (3)** ○ <i>or</i> FOS 402 Undergraduate Research (3)** • BIO 412 Molecular Biology I (4) 		<i>or</i> Molecular Biology Track: <ul style="list-style-type: none"> • BIO 413 Molecular Biology II (4) 	
Total Credits	15	Total Credits	14
Total Credits Fall and Spring terms of Senior Year			29
TOTAL CREDITS TAKEN AT JOHN JAY			60

Notes:

*Students who are exempt from the foreign languages requirement may take Liberal Arts (Humanities and Social Sciences) electives.

**Students may take the Forensic Science Laboratory Internship or the Undergraduate Research course either Fall or Spring semester.

V. Faculty

The Department of Physical Sciences faculty are active scholars and researchers in their fields:

Dr. Gregory Aizin teaches Advanced General Physics. His scholarship 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 is formerly the 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 involves the synthesis and characterization of biologically active compounds and chiral catalysts.

Dr. Kathryn Reinhard teaches General and Organic Chemistry. She is focused on implementing instructional technology into the 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 includes available supercomputing time at the 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 Science for Forensics 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.

VI. Cost Assessment

The joint A.S. in Science for Forensic Science/ B.S. in Forensic Science with John Jay College will incur no additional costs at Kingsborough in the first two years of implementation. Our current chemistry offerings and other physical science curriculum is fully supported and there is no need for additional support as a result of the new joint program. Chemistry laboratories have been upgraded over the past ten years and 3M Media Systems and Smart Boards have been installed in many classrooms available for chemistry and other science courses. The third floor of the Arts and Science Building houses the faculty offices, the teaching and research laboratories and classrooms. The main chemistry laboratories

(S325/S326/S335) have been arranged to allow for more active student learning. The laboratories are equipped with computers and instructional software. Media and equipment resources and support are readily available. There are currently 14 full-time and 24 part-time faculty, five full-time and three part-time laboratory technicians in the Department of Physical Sciences. Five of the full-time and seven of the part-time faculty teach chemistry and two of the full-time technicians support the chemistry laboratories. Online research/journal databases, instructional/tutorial videos and software, as well as textbook and other required reading materials on E-Reserve are available through KCC's Kibbee Library.

If enrollment projections materialize, then one additional section of Biology I, Chemistry I, Organic Chemistry I and II, and Physics II will be needed by the second year of the program's implementation. These additional adjunct instructor and lab technician hours have been noted in the appended Projected Expenditure Table.

**PROJECTED EXPENDITURES FOR THE
A.S. IN SCIENCE FOR FORENSICS
(SED Form)**

**Projected Expenditures for the
A.S. in Science for Forensics**

Expenditures	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
<i>Faculty</i>					
New Resources	Ø	\$81,000*	\$81,000	\$81,000	\$81,000
<i>Equipment</i>					
New Resources	Ø	Ø	Ø	Ø	Ø
<i>Other</i>					
New Resources	Ø	\$ 300 †	\$ 340	\$ 340	\$ 340
Total					
New Resources	Ø	\$81,300	\$81,340	\$81,340	\$81,340

* Adjunct instructional hours for one additional section of CHM 12, BIO 12, CHM 31, CHM 32 and PHY 13 for a total of 36 instructional hours @ \$2,250 per semester hour.

† Additional laboratory supplies for additional sections noted.

**PROJECTED REVENUE RELATED
TO THE
A.S. IN SCIENCE FOR FORENSICS**

(SED Form)

Projected Revenue Related to the

A.S. in Science for Forensics

Revenues	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
<i>Tuition Revenue</i>					
01. From Existing Sources	01. \$ 0	01. \$ 46,760	01. \$ 72,440	01. \$ 69,000	01. \$ 73,320
02. From New Sources	02. \$ 67,800	02. \$ 67,800	02. \$ 81,920	02. \$ 81,920	02. \$ 111,400
03. Total	03. \$ 67,800	03. \$ 114,560	03. \$ 154,360	03. \$ 150,920	03. \$ 184,720
<i>State Revenue</i>					
04. From Existing Sources	04. \$ 0	04. \$ 65,800	04. \$ 51,700	04. \$ 49,350	04. \$ 51,700
05. From New Sources	05. \$ 47,000	05. \$ 47,000	05. \$ 58,750	05. \$ 56,400	05. \$ 79,900
06. Total	06. \$ 47,000	06. \$ 112,800	06. \$ 110,450	06. \$ 105,750	06. \$ 131,600
<i>Other Revenue</i>					
07. From Existing Sources					
08. From New Sources					
09. Total					
<i>Grand Total</i>					
10. From Existing Sources	10. \$ 0	10. \$ 112,560	10. \$ 124,140	10. \$ 118,350	10. \$ 125,020
11. From New Sources	11. \$ 114,800	11. \$ 114,800	11. \$ 140,670	11. \$ 138,320	11. \$ 191,300
TOTAL	12. \$ 114,800	12. \$ 227,360	12. \$ 264,810	12. \$ 256,670	12. \$ 316,320

Tuition of \$1,540 x 2 semesters was used for calculating full-time enrollment revenues for the first two years and an inflation rate of 2.6% was added in 2011-2012. Part-time tuition was calculated at \$120 per credit per student. State revenue of \$2,350 per FTE

