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## LOYOLA UNIVERSITY MARYLAND

Vice President for Academic Affairs

— 1852 —

February 18, 2018

James D. Fielder, Jr., Ph.D.  
Secretary of Higher Education  
Maryland Higher Education Commission  
6 N. Liberty Street  
Baltimore, MD 21201

Dear Secretary Fielder:

Please find attached a proposal from Loyola University Maryland for a Bachelor of Arts in Forensic Studies.

This program will complement our Minor in Forensic Studies, allowing students the opportunity to major in a field for which there is both student demand and a workforce need, complemented by Loyola's continued commitment to a Jesuit and liberal arts education.

Loyola University Maryland looks forward to working with the Commission on the recommendation of this proposal. Accompanying this letter you will find payment of \$850 for the program review fee. Should the Commission have any queries on the proposal, please contact Dr. Westley Forsythe, Director of Academic Assessment and Compliance, at 410-617-2317 and [wforsythe@loyola.edu](mailto:wforsythe@loyola.edu).

Sincerely,

A handwritten signature in black ink that reads "Amanda M. Thomas".

Amanda M. Thomas, Ph.D.  
Interim Vice-President for Academic Affairs

cc: Dr. Steven Fowl, Dean, Loyola College of Arts and Sciences.  
Dr. Jenny Lowry, Associate Vice-President for Academic Affairs

MARYLAND HIGHER EDUCATION COMMISSION  
ACADEMIC PROGRAM PROPOSAL

PROPOSAL FOR:

- NEW INSTRUCTIONAL PROGRAM  
 SUBSTANTIAL EXPANSION/MAJOR MODIFICATION  
 COOPERATIVE DEGREE PROGRAM  
 WITHIN EXISTING RESOURCES or  REQUIRING NEW RESOURCES

(For each proposed program, attach a separate cover page. For example, two cover pages would accompany a proposal for a degree program and a certificate program.)

Loyola University Maryland

Institution Submitting Proposal

Fall 2018

Projected Implementation Date

B.A.

Forensic Studies

Award to be Offered

Title of Proposed Program

43.0106

Suggested HEGIS Code

Suggested CIP Code

Department of Proposed Program

Name of Department Head

Westley Forsythe

wforsythe@loyola.edu

443-617-2317

Contact Name

Contact E-Mail Address

Contact Phone Number



Signature and Date

President/Chief Executive Approval

2/14/18

Date

Date Endorsed/Approved by Governing Board



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## **Executive summary**

This proposal aims to exploit the success of Loyola’s forensic studies interdisciplinary minor and offer a distinct major in forensic studies. This proposal also coincides with the initial collaborative strategic planning by the Center for Forensic Excellence, the Office of the Attorney General, Maryland law enforcement agencies, and several two-year and four-year academic institutions, in the development of forensic training and education opportunities that surpass those found in any other state. The program will also focus on the development of the critical personal skills and background in ethics provided by Loyola. The Maryland State Taskforce on Forensic Science identified each of these areas as current deficiencies in undergraduate education that programs need to address.

Student interest, professional development needs, and identified educational deficiencies in the area informs the curriculum in this proposed program. For these reasons Loyola is poised to be distinctive and a leader in forensic education.



**A. Centrality to mission and planning priorities, relationship to the program emphasis as outlined in the mission statements, and an institutional priority for program development;**

Identified professional development needs, beyond the core application of scientific skills, offers a confluence of educational needs that complements and enhances Loyola’s mission. The attributes of a forensic studies professional are consistent with those of a Loyola graduate: excellent oral and written communication skills; intellectual curiosity; use of interdisciplinary approaches; critical thinking skills; commitment to life-long learning; and strong moral and ethical character. Regardless of task assigned, a forensic scientist seeks only truth. These attributes are the hallmarks of a Jesuit education, and students pursuing degrees in the forensic studies would be required to develop and use this education. The characteristics of this proposed program, and the dearth of similar programs in the state and region, render a proposal one that can significantly contribute to Loyola’s distinctiveness and mission.

**B. Critical and compelling regional or Statewide need as identified in the State Plan;**

The state plan’s ‘strategy 8’ extols institutions ‘to develop new partnerships between colleges and businesses to support workforce development and improve workforce readiness’<sup>1</sup>  
The strategy also declares

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<sup>1</sup> Maryland Higher Education Commission, *State plan for postsecondary education: increasing student success with less debt, 2017-2021*, (Baltimore, 2017), p. 28.



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More than ever, employers seek employees who have the flexibility to understand changing conditions and solve emerging problems. Technical knowledge is not enough. A competitive workforce can work with diverse people, understand emerging technologies, communicate clearly, and find effective answers to questions that have never been asked before. In order to keep Maryland at the forefront of innovation, the postsecondary community needs to improve or develop new partnerships with businesses and industries.<sup>2</sup>

This proposed program, complemented by Loyola's commitment to the principles of Ignatian pedagogy, ensures graduates' education with both the disciplinary and sector knowledge augmented by a liberal arts education that will equip this program's graduates to make a significant and unique contribution in their chosen careers.

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<sup>2</sup> Ibid., p. 66.



**C. Quantifiable and reliable evidence and documentation of market supply and demand in the region and service area;**

Market demand

Table 1: Department of Labor, Licensing, and Regulation, employment projections 2012-2022

Occ Code	Occupational title	Employment		Change		Total	Education value
		2012	2022	Change	Replacement		
33-3011	Bailiffs	114	121	7	30	37	High school diploma or equivalent
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	124	140	16	19	35	Doctoral or professional degree
33-3021	Detectives and Criminal Investigators	1,070	1,144	74	236	310	High school diploma or equivalent
19-4092	Forensic Science Technicians	663	700	37	261	298	Bachelor's degree
33-3051	Police and Sheriff's Patrol Officers	14,791	15,549	758	4,638	5,396	High school diploma or equivalent
33-9021	Private Detectives and Investigators	1,611	1,714	103	452	555	High school diploma or equivalent
		18,873	19,368	995	5,636	6,631	



*Market supply*

Table 2: Annual enrollments in programs in Maryland institutions with the Classification of Instructional Program code 43.0106 (Forensic Science and Technology) and 43.0107 (Criminalistics and Criminal Science)

<b>Institution</b>	<b>Award Level</b>	<b>Program Name</b>	<b>CIP</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Towson University	Bachelors	Forensic Chemistry	430106	55	74	78	107	107	119	121	114	145	169	182
Towson University	Masters	Forensic Science	430106	0	7	18	24	40	48	43	39	46	49	49
University of Baltimore	Bachelors	Criminal Justice	430107	215	233	259	255	295	295	323	367	389	396	370
University of Baltimore	Bachelors	Forensic Studies	430106	52	45	43	43	52	57	62	58	59	62	59
University of Baltimore	Masters	Criminal Justice	430107	73	72	75	70	67	80	67	67	57	53	51
Univ. of Md Eastern Shore	Bachelors	Criminal Justice	430107	394	452	436	423	434	496	499	504	439	434	439
Univ. of Md University College	Bachelors	Investigative Forensics	430106	0	43	106	203	274	340	378	354	334	375	403
Stevenson University	Masters	Forensic Sciences	430106	8	12	19	23	20	27	25	28	35	52	37
<b>Total annual enrollments</b>				<b>797</b>	<b>938</b>	<b>1034</b>	<b>1148</b>	<b>1289</b>	<b>1462</b>	<b>1518</b>	<b>1531</b>	<b>1504</b>	<b>1590</b>	<b>1590</b>



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Table 3: Annual graduations from programs in Maryland institutions with the Classification of Instructional Program code 43.0106 (Forensic Science and Technology) and 43.0107 (Criminalistics and Criminal Science)

Institution	Award Level	Program Name	CIP	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Coppin State University	Post Baccalaureate Certificate	Investigative Sciences	430106	0	0	0	0	0	0	0	0	0	0	0
Towson University	Bachelors	Forensic Chemistry	430106	0	4	6	5	4	2	3	6	10	12	12
Towson University	Masters	Forensic Science	430106	0	0	0	3	9	12	19	15	9	20	16
University of Baltimore	Bachelors	Criminal Justice	430107	55	57	51	52	48	51	49	52	59	61	69
University of Baltimore	Bachelors	Forensic Studies	430106	7	15	11	18	5	21	12	16	19	25	20
University of Baltimore	Masters	Criminal Justice	430107	11	14	20	18	13	9	11	9	18	10	18
Univ. of Md Eastern Shore	Bachelors	Criminal Justice	430107	45	62	72	71	72	56	77	89	76	96	110
Univ. of Md University College	Bachelors	Investigative Forensics	430106	0	0	0	1	11	8	27	39	54	49	54
Stevenson University	Masters	Forensic Sciences	430106	0	0	3	5	14	7	17	12	13	12	25
<b>Annual graduations</b>				<b>118</b>	<b>152</b>	<b>163</b>	<b>173</b>	<b>176</b>	<b>166</b>	<b>215</b>	<b>238</b>	<b>258</b>	<b>285</b>	<b>324</b>





Table 2 above reflects the potential Maryland employment demand for graduates of a forensic science program, although graduates could pursue careers beyond those outlined in in table 2. The University anticipates that many of the program’s graduates will work in public policy fields and/or proceed to graduate school, including law and medicine. The projections in table 2 reflect a cross-referencing of the Departments of Education’ taxonomical categorization of the program with corresponding and cross-referenced Maryland Department of Labor, Licensing, and Regulation employment projections, that are ultimately sourced from the Bureau of Labor Statistics. These cross-referenced data points indicate that Maryland has an average annual employment need of about 660 positions annually that graduates of the B.S. in Forensic Science could fulfil, but for which Maryland universities and colleges in 2015 graduated 324 individuals as identified in table 3.

**D. Reasonableness of program duplication, if any;**

The only program in Maryland that an objective observer could declare duplicative is the B.S. in Forensic Science at the University of Baltimore; however, there exists a growing demand for professionals in the field that the state’s universities and colleges are not meeting by some distance.

Furthermore, the Integrated Postsecondary Education Data System (IPEDS) demonstrates that 84% of Loyola’s students are out-of-state and only 15% in state<sup>3</sup>; the corresponding figures

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<sup>3</sup> Integrated Postsecondary Education Data System (IPEDS), retrieved on January 23, 2018 from <http://nces.ed.gov/collegenavigator/?id=163046#enrolmt>



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for the University of Baltimore are 3% and 80%, with 16% ‘unknown,’<sup>4</sup> indicating there is little or no overlap between the institutions’ recruitment and enrollment efforts.

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<sup>4</sup> Ibid., <http://nces.ed.gov/collegenavigator/?id=161873#enrolmt>, retrieved on February 20, 2016.



**E. Relevance to the implementation or maintenance of high-demand programs at HBIs;**

Loyola anticipates no impact upon Maryland HBCUs, primarily because no Maryland HBCU has a forensic science program.

**F. Relevance to the support of the uniqueness and institutional identities and missions of HBIs;**

No Maryland HBCUs at this time offer programs or courses, of which we are aware, that provide opportunities for collaboration or that would allow Loyola to support their uniqueness and institutional identities.

**G. Adequacy of curriculum design and delivery to related learning outcomes consistent with Regulation .10 of this chapter;**

Curriculum from the existing Forensic Science minor and existing majors from the Division of Natural and Applied Sciences will populate the curriculum and program calendar detailed in tables 4, 5, and 6. Detailed course descriptions are available from the [institution's catalog](#) and Appendix A.



Table 4: Forensic Studies core curriculum

<b>Course code</b>	<b>Course name</b>
BL 101	Introduction to Forensic Science (4)
BL 355	Forensic Biology (5)
PY 202	Psychopathology (3)
SC 330	Forensics (3)
SC 367	Criminal Justice (3)
WR 326	Technical Writing (3)

Forensic Studies Core courses (twenty-four credits, including capstone)



Table 5: Forensic Studies capstone courses

Students must complete one of the following capstone courses. (3)

<b>Course code</b>	<b>Course title</b>
BL 498	Forensic Studies Experience
CH 498	Forensic Studies Experience
CM 498	Forensic Studies Experience
EG 490	Forensic Studies Experience
PH 498	Forensic Studies Experience
PY 418	Special Topics in Psychology: Forensic Psychology
PY 419	Advanced Special Topics Research in Psychology: Forensic



Table 6: Forensic Studies electives

Students must complete five (fifteen to twenty-four credits) courses from the following Forensic Studies electives:

<b>Course code</b>	<b>Course title</b>
BL 322	Synthetic Biology w/lab
BL 341	Molecular Genetics w/lab
BL 351	Forensic Entomology
BL 428	Bioterrorism
BL 473	Special Topics in Forensic Biology
CH 201	Quantitative Analysis
CH 410/411	Instrumental Methods
CH 431/433	Biochemistry I w/lab
CL 327	Volcanoes, Fire and Flood: Disasters of Ancient Rome
CS 115	Introduction to Computers with Digital Forensics
CS 151	Computer Science
EC 320	The Political Economy
EC 330	Law and Economics
EG 381	Engineering Probability and Statistics
HN 221	Poe, Holmes, and the Evolution of Forensic Science



Course code	Course title
HS 330	Crime and Punishment in Modern Europe
HS 353	History of Violence in America
HS 382	Crime and Punishment in Latin America
IS 358	Business Intelligence and Data Mining
LW 103	Law and the City: Planning, Politics and Justice
LW 104	Criminal Law and Society
LW 109	Business, Law and Society
MA 251	Calculus I
MA 252	Calculus II
PH 383	Physics and Medicine
PH 384	Waves and the Physics of Medicine
PL 317	The Experience of Evil
PL 333	Philosophy of Law
PL 332	Security Ethics
PL 342	Law, Society and God
PT 270	Basic Digital Photography
PT 361	Digital Image
PY 253	Multicultural Issues in Psychology
PY 256	Psychology of Gender
PY 421	Forensic Psychology
PS 337	Analytical and Legal Reasoning
PS 338	Constitutional Law I
PS 339	Constitutional Law II
SC 107	Social Problems



Course code	Course title
SC 331	Deviance and Social Control
SC 332	Sociology of Crime and Criminals
SC 333	Juvenile Delinquency
SC 334	Sociology of Policing
SC 347	Special Topics in Criminology
SC 430	Seminar: Gender and Justice
SC 434	Seminar: Women and Deviance
SC 435	Seminar: Forensic Sociology
ST 381	Probability and Statistics
TH 386	Fundamental Questions of Morality

The remainder of the program involves fulfilment of the university’s core curriculum (general education) requirements, which total seventeen courses, a minimum of fifty-three credits, and additional degree electives where any core courses also fulfil the major’s requirements, to ensure any student completes a minimum of forty courses and 120 credits. Appendix A provides course descriptions for those fulfilling the major’s requirements.

**H. Adequacy of any articulation;**

Potential exists for collaboration with a number of schools, but this remains an aspiration rather than a requirement and Loyola is able and committed to delivering the program without partners.





**I. Adequacy of faculty resources consistent with Regulation .11 of this chapter;**

As is evident from table 7 below, established full-time tenured and tenure track faculty will deliver the majority of the program, and the overwhelming majority possess Ph.D. degrees in their field. Additionally, the nature of the field renders axiomatic the need and prudence of including professional practitioners who will not be full-time faculty, but rather forensic scientists and law enforcement professionals.

Table 7: program faculty

Course code	Faculty	Faculty Type
BL 101	Thomas-Chesley	Affiliate
BL 118	Brogan, Kazi, Geiman, Scheifele, Schoeffield, Thompson	Full time
BL 119	Brogan, Geiman, Scheifele, Umanah	Full time or Affiliate
BL 121	Brogan, Schoeffield, Geiman, Kazi, Blohm	Full time
BL 126	Medghalchi, Harberts, Cassin, Regan	Full time or Affiliate
BL 322	Scheifele	Full time
BL 341	Kazi	Full time
BL 351	Rivers	Full time
BL 355	Rivers	Full time
BL 428	Thompson	Full time
BL 473	Rivers	Full time
CH 201	Dahl	Full time
CH 410/411	Dahl	Full time
CH 431/433	Barr, Nguyen	Full time
CL 327	TBD	Full time or Affiliate
CS 115	Byrd	Affiliate
CS 151	James	Full time



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EC 320	TBD	Full time or Affiliate
EC 330	Di Lorenzo	Full time
EG 381	Keilson	Full time
HS 353	TBD	Full time or Affiliate
HS 382	Carey	Full time
IS 358	Sharkey, Jefferson	Full time
LW 103	TBD	Full time or Affiliate
LW 104	TBD	TBD
LW 109	Brown, Giampetro-Meyer	Full time
MA 251	Pile, Oberbroeckling, Thompson,	Full time or Affiliate



**J. Adequacy of library resources consistent with regulation .12 of this chapter**

The Loyola-Notre Dame Library (LNDL) hosts well in excess of 400,000 volumes. In 2000, LNDL acquired its 400,000th volume, bringing the library to near its total holding capacity. In 2002, the library implemented the first ENCompass Digital Library System - a federated search engine 'encompassing' most of the library's database contents - in the United States. During the next ten years, the library's digital capabilities expanded exponentially, resulting in the addition of over 250,000 digital book titles and over 56,000 online journals. By 2007, the Maryland Interlibrary Consortium (MIC) consortium of libraries had grown to include four libraries in addition to LNDL, bringing total consortium holdings to over one million volumes.

An extensive building renovation and expansion project commenced in the summer of 2006 after several years of planning to bring the library into the digital age physically. Hillier/RMJM designed the new addition and renovation to the original building; the renovations would bring the size of the library to 125,000 square feet. By July 2008, Whiting-Turner had completed the construction at a cost of \$20,000,000.

The library has embarked on two strategic plans during the period from 2005-2012 that have guided the priorities and budget allocations to keep the library a vital organization for students and faculty of Loyola and Notre Dame during the early 21st century. Through all these changes, the Loyola-Notre Dame Library has held constant its underlying mission, the provision



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of top-quality library services and resources to the communities of Loyola University and Notre Dame of Maryland University.

In summary, the university library and its services can adequately accommodate the learning needs of the extant minor in Forensic Studies and can do so for this proposed program.

**K. Adequacy of physical facilities, infrastructure, and instructional equipment consistent with Regulation .13 of this chapter;**

Loyola University Maryland, established in 1852, holds regional accreditation from the Middle States Commission for Higher Education and is entirely equipped to offer programs at all degree levels, including doctoral programs in select areas. This includes the necessary classroom resources, technology, student support and development assets and laboratory space. Additionally, a study of other schools' facilities demonstrates that Loyola's College of Arts and Sciences very well equipped to offer a program of this kind with the required rigor and scientific facilities to ensure can be a regional leader in this field and lead collaborations of institutions in the area, if academic and fiscal rationale presents such an opportunity.



**L. Adequacy of financial resources with documentation consistent with Regulation .14 of this chapter;**

The university resources required to initiate the forensic science major are minor. Neither new courses nor faculty lines are required. The design relies on existing courses offered at Loyola. A Program Director (Coordinator) will oversee this major, and to serve as students' academic advisor, which includes working with students to find appropriate practical opportunities. Dr. David Rivers will serve this role, and compensation would be in the form of a course release per term. Significant student enrollments in the major may require the offering of additional sections of current courses, or alternatively, students can complete the same or similar courses at partner institutions. The program will require a modest marketing budget in its initial year. Appendix B: financial tables, provides additional quantitative data.

**M. Adequacy of provisions for evaluation of program consistent with Regulation .15 of this chapter;**

The Forensic Studies major provides a framework for students to explore ideas, concepts, and technology addressing crime, homeland security, and growing threats to individuals, institutions and nations through acts of terrorism and attacks on security. Concomitantly it provides a solid foundation in the natural sciences through courses in biology, chemistry, and physics, complemented by rigorous focus on biological and chemical concepts and analytical



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thinking through coursework in biology, chemistry, mathematical sciences, and statistics. Students will also experience and receive training in multi-disciplinary approaches to forensic science; analyses applied to criminal and civil investigations; matters of administrative law; exploration of factors and events that influence individuals and groups to engage in criminal activity or commit acts of violence; and examination of issues that threaten national security and the tactics to counter such threats.

The Forensic Studies major is anticipated to be a popular course of study for an array of students at Loyola University Maryland. The curricular path for the major encourages breadth of understanding, interdisciplinary approaches, critical understanding, team skills, excellent communication skills, and deductive reasoning, all within the milieu of Forensic Science. The expectation is that interested students achieve greater levels of proficiency in content and learning outcomes than may be achieved with other topics due to increased motivation. Specifically, the major's curriculum will develop and promote skills needed for a career in forensic sciences, including excellent oral and written communication skills, intellectual curiosity, use of interdisciplinary approaches, critical thinking skills, and commitment to life-long learning. Additionally, the program and its curriculum will emphasize the development of strong moral and ethical character in students.

The forensic studies major curriculum will bestow the following learning and curricular outcomes:

*University objectives for learning outcomes specifically supported by the Forensic Science major:*

- Intellectual excellence
- Critical understanding
- Eloquentia Perfecta



- Leadership
- Promotion of justice

*Curricular Outcomes specifically supported through the Forensic Studies curriculum:*

- Students will master current factual content, concepts, theoretical perspectives, and historical trends of different subfields of forensic studies.
- Students will demonstrate proficiency in communicating effectively in a variety of formats, including verbal, written, and symbolic channels, relevant to forensic investigation, criminology, and presentations in the judicial system.
- Students will develop an understanding of the moral and ethical issues surrounding crime and forensic investigation.
- Students will demonstrate a clear understanding of major concepts and techniques used in subfields of forensic studies based on their ability to read, interpret, and critically evaluate primary literature; design experiments or conduct independent investigation to test ideas and hypotheses; and interpret data through statistical and graphical packages.
- Students will demonstrate an understanding of the personal, economic, and environmental factors that lead to individuals committing crimes and how this underlying knowledge influences how crimes are investigated.

The curricular background of Forensic Studies major will permit students to pursue the same graduate and professional schools and workforce opportunities afforded to Biology and Chemistry majors, while also offering additional avenues into fields associated with forensic science, forensic studies, criminology, law enforcement, and related careers.



**N. Consistency with the Commission's minority student achievement goals; and**

Loyola remains committed to an inclusive and diverse academic environment and upholding and fostering the principle enshrined in Title VI of the 1964 Civil Rights Act. This year's freshman class is Loyola's most diverse and reflects its long-term commitment to diversity and social justice. At Loyola University Maryland, diversity related programs and offices are plentiful throughout the campus. African, Latino, Asian, and Native American Services (ALANA) supports programming throughout the year that supports multicultural diversity and provides student support. The Center for Community Service and Justice engages students and the broader Loyola community in education through service for a just and equitable world. OUTLoyola is a group of faculty, staff, and administrators of all backgrounds who are interested in promoting equality for the LGBT members of the campus community and informed dialogue about LGBT issues at Loyola.<sup>5</sup>

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<sup>5</sup> Maryland Independent Colleges and Universities Association, *Cultural diversity report, 2015*, p. 14. Retrieved on January 25, 2018 from <http://www.micua.org/images/2015MICUACulturalDiversityReport.pdf>  
Cf. The Alana website <http://www.loyola.edu/department/alana/about>



## Appendix A: course descriptions

BL101 Introduction to Forensic Science with lab (4.00 cr.) *Restricted to students minoring in forensic studies or written permission of the department chair.* An introduction to the field of forensic science and its application in the world today. Topics include crime scene investigation, DNA analysis, questioned documents, forensic psychology, and toxicology. Lab topics include fingerprint and shoe print analysis, crime scene investigation, blood typing, and use of DNA in criminal investigation. *Fulfills the natural science core requirement for nonscience majors. Closed to students who have taken [BL 110](#). IF.*

BL 118 - Introduction to Cellular and Molecular Biology (3.00 cr.) *Corequisite: [BL 119](#).* An examination of the cellular basis of life, specifically how cell structure determines cell function, thereby enabling cells to adapt to their environment. Topics include metabolism, energy conservation, central dogma, gene regulation, cell reproduction, and the cell in its social context. *Required for biology majors. Fulfills the natural science core requirement.*

BL 119 - Introduction to Cellular and Molecular Biology Lab (1.00 cr.) *Corequisite: [BL 118](#).* Laboratory work supports and enhances material from the lecture. In addition, students are introduced to techniques used in the laboratory, as well as in the field of cellular and molecular biology. These techniques include microscopy, enzyme kinetic studies, DNA isolation, and gel electrophoresis.

BL 121 - Organismal Biology (3.00 cr.) *Prerequisite: [BL 118](#), [BL 119](#). Corequisite: [BL 126](#).* Students are provided a brief introduction into the diversity of organisms, followed by a more in-depth examination of the relationship between the structure and function of cells, tissues, and organ systems in plants and animals. A comparative approach is used to examine how organisms solve various issues pertaining to life. These problems include nutrition, exchange of gasses, reproduction and development, transport of materials, and control via hormonal and neural communication. Students are introduced to the process of scientific thinking, as well as the principles of organismal biology. *Required for biology majors. Fulfills the natural science core requirement.*

BL 126 - Organismal Biology Lab (1.00 cr.) *Corequisite: [BL 121](#).* Laboratory work supports and enhances material from the lecture. The course focuses on observational skills and covers topics that include diversity of organisms, introductory comparative anatomy, and vertebrate anatomy. Technical skill development includes microscopy and invertebrate and vertebrate dissections.

BL 322 - Synthetic Biology with Lab (5.00 cr.) *Prerequisite: [BL 118](#), [BL 119](#), [BL 121](#), [BL 126](#).* Examines the emerging field of synthetic biology, focusing on the design of biological devices and organisms. Topics include gene structure and regulation; genome organization; synthesis of whole genomes; genetic circuits; and the practical applications of synthetic biology in the creation of biofuels, production of pharmaceuticals, and development of vaccines. The laboratory employs bioinformatic tools to analyze DNA sequences and design genes, as well as bioengineering techniques to construct a portion of a genome. *IFS*

BL 341 - Molecular Genetics with Lab (**5.00 cr.**) *Prerequisite: BL 118, BL 119, BL 121, BL 126.* Students are introduced to the basic principles of molecular genetics and how studies in molecular genetics have advanced fields such as genetic engineering. Topics include structure and function of nucleic acids and proteins; gene expression and regulation in prokaryotic and eukaryotic organisms; and the nature of mutations and cancer. Examines some of the genetic tools used to analyze genes. The laboratory emphasizes basic and advanced techniques of DNA, RNA, and protein manipulation. Students also learn to use computer software to access gene databases and analyze gene sequences. *IFS*

BL 351 - Forensic Entomology with Lab (**5.00 cr.**) *Prerequisite: BL 118, BL 119, BL 121, BL 126.* *Recommended Prerequisite: BL 201, BL 202, BL 250.* Forensic entomology is the application of basic and applied principles of insect biology and the collection of entomological data in such a manner that it can be used as evidence in criminal investigations to aid in resolving legal issues that are either criminal or civil in nature. Lectures explore the use of insects in the science of forensic entomology and its impact on death scene investigation, neglect, or abuse; contamination of food products and other marketable goods; and subsequent litigation. Laboratories focus on techniques associated with death scene investigation, particularly in the collection and identification of arthropods found on a corpse. *Some field trips may be associated with the laboratory portion of the course. IFS*

BL 355 - Forensic Biology with Lab (**5.00 cr.**) *Prerequisite: BL 118, BL 119, BL 121, BL 126; or written permission of the department chair for nonmajors.* An introduction to the role of biology in forensic sciences. Topics include biological evidence, influences of invertebrates, vertebrates and microorganisms on legal matters, and in-depth discussion of body fluid analyses. Labs examine techniques associated with biological evidence analyses. *IFS*

BL 428 – Bioterrorism (**3.00 cr.**) *Prerequisite: BL 118, BL 119, BL 121, BL 126, BL 201, BL 202; or written permission of the instructor.* A survey of the history and biology of bioterrorism and biowarfare agents. The course focuses on the cellular and molecular biology of organisms identified by the Centers for Disease Control and Prevention as bioweapons. Emphasis is placed on scientific communication (student-led lectures) and reading/understanding of relevant scientific literature.

BL 473 - Special Topics in Forensic Biology (**3.00 cr.**) *Prerequisite: Two upper-level biology courses (BL 222 or higher) including at least one biology elective at the 300- level or higher and junior/senior standing, or written permission of the department chair.* An examination of current topics in forensic biology with an emphasis on the use of primary literature. Students lead group discussions and/or make oral presentations. *May be repeated for credit with different topics. IFS*

BL 498 - Forensic Studies Experience (**3.00 cr.**) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in-depth exploration of a topic associated with forensic or criminal investigation. *Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. Written or electronic permission of a sponsoring faculty member. IFS*

CH 201 - Quantitative Analysis (**4.00 cr.**) *Prerequisite: CH 102.* An investigation into techniques used to determine chemical composition. Includes application of statistical analysis to chemical systems and emphasizes chemical equilibrium. Provides a foundation for advanced level courses in physical chemistry, instrumental analysis, and laboratory techniques. *Lecture/Laboratory. IFS*

CH 410 - Instrumental Methods (3.00 cr.) *Prerequisite: CH 201, CH 311, CH 315. Corequisite: CH 411.* Principles and applications of analytical instrumentation. An introduction to spectroscopic, chromatographic, and electrochemical techniques. *IFS*

CH 411 - Instrumental Methods Lab (1.00 cr.) *Prerequisite: CH 201, CH 311, CH 315. Corequisite: CH 410.* Covers principles and applications of some spectroscopic and chromatographic techniques. Applications of chemometrics. *IFS*

CH 431 - Biochemistry I (3.00 cr.) *Prerequisite: CH 302, CH 308. Corequisite: CH 433.* General principles of biochemistry including studies of the macromolecules (carbohydrates, lipids, proteins and nucleic acids), enzyme kinetics and reaction mechanisms, and intermediary metabolism. *Same course as BL 431. IFS*

CH 433 - Biochemistry Lab I (1.00 cr.) *Corequisite: CH 431.* Designed to supplement and reinforce concepts covered in the lecture course and introduce students to the techniques of the modern biochemistry laboratory. Experiments include computer visualization of biomolecules, enzyme kinetics, chromatography, and electrophoresis. *Same course as BL 433. IFS*

CH 498 - Forensic Studies Experience (3.00 cr.) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in-depth exploration of a topic associated with forensic or criminal investigation. *Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. Written or electronic permission of a sponsoring faculty member. IFS*

CL 327 - Volcanoes, Fire, and Flood: Disasters of Ancient Rome (3.00 cr.) *Prerequisite: One HS 100level course.* An examination of ancient Rome's greatest disasters: the destruction of Pompeii, the Great Fire of Rome, floods, and plagues. Students investigate the causes of these events; the Romans' efforts to navigate and make sense of them; and the transformations they brought to the ancients' environment, behavior, and thought. *Same course as HS 327. IFS*

CM 498 - Forensic Studies Experience (3.00 cr.) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in-depth exploration of a topic associated with forensic or criminal investigation. *Written or electronic permission of a sponsoring faculty member. Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. IFS*

CS 115 - Cyber Security and Digital Forensics (3.00 cr.) An introduction to computer science with an emphasis on techniques and procedures for investigating digital material in conjunction with criminal investigations. Includes the recovery of digital files, network monitoring, and the operation and detection of malware. Students also get hands-on experience with data analysis and organization using spreadsheets and databases. *IFS*

EC 320 - The Political Economy of War (3.00 cr.) *Prerequisite: EC 103.* The economic causes and consequences of war. Topics include how war transforms economic and political institutions; economic interventionism as a cause of war; laissez-faire as the antitheses of war; the ratchet effect of war on the

growth of government; the political economy of the military-industrial-congressional complex; the myths of wartime prosperity and nation building; hidden and not-so-hidden costs of war; how wars are financed; and who benefits from war. *GT/IFS*

EC 330 - Law and Economics (3.00 cr.) *Prerequisite: EC 102.* An application of the tools of economic analysis to several key areas of the law. Topics include contracts, environmental policy, criminal law and crime deterrence, discrimination in employment and housing, landlord-tenant laws, property law, torts, and zoning. *IFS*

EG 381 - Probability and Statistics (3.00 cr.) *Prerequisite: MA 252.* Random experiments, probability, random variables, probability density functions, expectation, descriptive statistics, confidence intervals, hypothesis testing, and simple linear regression. *Degree credit will not be given for more than one of EG 381 or ST 210 or ST 265 or ST 381. Same course as ST 381. IFS (Fall only)*

EG 490 - Forensic Studies Experience (3.00 cr.) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in-depth exploration of a topic associated with forensic or criminal investigation. *Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. Written or electronic permission of a sponsoring faculty member. IFS*

HS 330 - Crime and Punishment in Modern Europe (3.00 cr.) *Prerequisite: One HS 100-level course.* From murder to mayhem, torture to transportation, and muggers to Mafiosi, historians have discovered that deviance and its prevention provide a unique perspective into the workings of past societies. Consequently, crime and punishment have become popular topics of historical investigation over the last few years. Explores the development of criminal justice in modern Europe in the context of changing social, political, and intellectual pressures. Examines evolving patterns of crimes, innovations in law enforcement, differing definitions of deviance, and the impact of ideology on forms of punishments. Concentrates on the growing role of the state with its emphasis on public justice over personal compensation, and analyzes the later shift from physical retribution, such as torture, to moral rehabilitation through incarceration. *IFS*

HS 353 - History of Violence in America (3.00 cr.) *Prerequisite: One HS 100-level course.* Violence has been a salient feature in America's past and present and portends to play a major role in the future. We can observe the history of violence from the invasion of the Americas; to the Puritans' exclusivity; to the legal and social subjugation of Africans into chattel slavery; to the rise and near fall of urban centers; to and through revolutionary and civil wars; to the chemical destruction of the physical environment at home and abroad; to a steady contemporary diet of enactments of violence in Hollywood films, television cartoons, comic strips, music videos, art exhibits, popular literature, etc.; and to the present revelation of the high incidence of violence in American families. This course increases students' understanding of the subtle dimensions and roots of violence and also enables them to determine alternatives and solutions to violent thought and acts in American society. *IFS/IU*

HS 382 - Crime and Punishment in Latin America (3.00 cr.) *Prerequisite: One HS 100-level course.* Crime, punishment, and the laws that define them are examined to provide a window onto the history of class, ethnic, and gender relations in Latin America. Courtrooms-and the documents they generate-are exceedingly important for historians writing about laboring classes, women, indigenous peoples,

Africans, and other marginalized groups. Through books, articles, films, and primary sources, students study how laws and crime have shaped people's understandings of politics, morality, and social relationships. Understanding the factors that bring people into contact with the law, as well as their perceptions of it, will elucidate how racism, sexism, and poverty determine people's paths to crime. In turn, deconstructing laws and social norms will elucidate some of the ways governments and elites maintain power. As the relationship between laws, crime, and power is reconceptualized, students may begin to rethink how they study the past. *GT/IFS/IL*

**IS 358 - Business Intelligence and Data Mining (3.00 cr.)** *Prerequisite: EC 220, IS 251 or BH 251, MA 151 or MA 251; or written permission of the department chair.* Students are introduced to data mining as a technology to discover information and knowledge from large datasets for business decisions. Students utilize SAS Enterprise Miner™ to perform data mining using methods such as clustering, regression and decision trees. Students develop a project using current business intelligence technology for data mining. Forms the foundation for customer relationship management in marketing and forensic accounting. **IFS LW 103 - Law and the City: Planning, Politics, and Justice (3.00 cr.)** People shape, and are shaped by, the cities they inhabit. Every city looks, feels, and operates differently due to conflicting political, economic, and demographic pressures. How people use the law to construct their urban environments defines and distinguishes them from others. Examples are zoning laws, which divide, promote, and prohibit various activities within a city; criminal laws that shape the relationships between citizens and police; environmental laws that preserve and protect certain lands while concentrating the contamination of others; and municipal governance laws that allocate political power among residential neighborhoods and socioeconomic groups. An historical examination of how these laws have been used, and by whom, reveals examples of how the American legal system has, in some cases, perpetuated social injustice, and in others, been used as a tool for social justice and change. The laws and legal theories at the heart of urban development are critically examined to help students to better engage directly with these issues as active citizens. *IES/IFS*

**LW 104 - Criminal Law and Society (3.00 cr.)** Criminal law is about a process by which evidence is gathered, organized, analyzed, and, if necessary, presented to a trier of fact to determine whether a defendant has committed a crime. This course considers principles of the law of crimes and proof of the criminal violation. More importantly, topics that sit at the intersection of law and justice are explored, making it clear that criminal law reflects the social setting in which it occurs. Does the government target certain groups for a disproportionate level of enforcement? Do prosecutors take into consideration the particular circumstances of the defendant's race, gender, social status, or economic situation in deciding whether conduct constitutes a crime? These and similar justice-based questions are considered. *IFS*

**LW 109 - Business, Law, and Society: Special Topics (3.00 cr.)** Provides a foundation for students who wish to explore the role that law plays in social, political, economic, and cultural life as it pertains to business behavior. The coursework provides a foundation of knowledge regarding the basic concepts necessary to understanding how business operates, the rules of law, and the influences and effects of law on the social and economic system. The course goal is to provide students with an understanding of the nature and functions of law in society and how law influences business behavior. *IFS*

**MA 251 - Calculus I (4.00 cr.)** *Prerequisite: MA 109 or a score of 56 or better on Part II of the Math Placement Test or one year of high school calculus.* A rigorous approach to Calculus for all majors.

Topics include limits, definition, interpretation, and applications of the derivative; differentiation rules; antiderivatives; definition of definite and indefinite integrals; and the Fundamental Theorem of Calculus. *Degree credit will not be given for both MA 151 and MA 251. IFS*

MA 252 - Calculus II (**4.00 cr.**) *Prerequisite: At least a C- or better in MA 251. A continuation of MA 251. Techniques and applications of integration; improper integrals; parametric equations and polar coordinates; sequences and series. IFS*

PH 383 - Physics of Medicine and the Human Body (**3.00 cr.**) *Prerequisite: PH 101 or PH 201. Expands on introductory physics courses through the study of mechanics, fluids, and sound as they are applied to the human body. Examples include biomechanics, metabolism, cardiovascular system, lungs, and alveoli, and hearing. Modern medical instrumentation is covered, particularly MRI, PET, and the gamma camera. Hands-on activities are included. *A field trip may be required. IFS (Spring only, Even Years)**

PH 384 - Waves and the Physics of Medicine (**3.00 cr.**) *Prerequisite: PH 102 or PH 202. Expands on introductory physics courses through the study of geometric optics, interaction of light with tissue, nuclear physics, and ultrasound, as they are applied to modern medical instrumentation. Examples include fiber optics, CT, gamma camera, PET, MRI, and ultrasound imaging. Hands-on activities are included. *One field trip may be required. IFS (Spring only) (Odd Years)**

PL 317 - The Experience of Evil (**3.00 cr.**) *Prerequisite: PL 201 and one additional PL 200-level course.*

What is the nature of evil? What are its causes? In what forms or guises has it appeared in human history? How is our understanding of evil influenced and informed by concepts like fate, guilt, freedom, responsibility, providence, God, and human nature itself? This course explores such questions by drawing upon a variety of philosophical, religious, and literary sources in an attempt to better understand the all too common *experience* of evil. *Fulfills ethics core requirement.*

PL 332 - Security Ethics (**3.00 cr.**) *Prerequisite: PL 201 and one additional PL 200-level course.* It is estimated that about twenty percent of the world economy is generated by criminal enterprise. Increasingly, legitimate business is competing in markets where mafia, pirates, terrorists, and crime gangs are active participants. Security ethics is an emerging subfield of business ethics which aims to understand these criminal risks (e.g., espionage, kidnapping, extortion, piracy) and calibrate ethical responses to them. On the basis of broad reading, this course suggests that an adaptation of Just War theory is an ethical model. *IFS*

PL 333 - Philosophy of Law (**3.00 cr.**) *Prerequisite: PL 201 and one additional PL 200-level course.* An examination of some basic systems of law, including legal positivism, common law, and natural law. Places where these systems come into conflict—for example, the tort law of wrongful birth—are a special focus of this course. By way of a central theme, students are introduced to the kinds and scope of laws governing homicide and how these apply domestically and internationally. The course is historical covering authors such as Bentham, Blackstone, and de Vitoria—as well as topical. *IFS*

PL 342 - Law, Society, and God (**3.00 cr.**) *Prerequisite: PL 201 and one additional PL 200-level course.* Centered around political writings of Aquinas and Hobbes, this course introduces students to the basic concepts of the philosophy of law and political philosophy's transition from the medieval to

the modern period. Main topics of investigation include law, jurisprudence, property, war, civil disobedience, and the role of religion in society.

PT 270 - Basic Digital Photography (**3.00 cr.**) Students acquire an understanding of and appreciation for both the technical and aesthetic aspects of reading and making photographs. Among the numerous techniques explored are lighting composition, and image enhancement and output. *Students are expected to supply a digital camera with the ability to control aperture and shutter speed. Fulfills fine arts core requirement. IFS*

PT 361 - Digital Image (**3.00 cr.**) *Prerequisite: PT 270 or PT 300 or written permission of the instructor.* Examines the ways in which the computer and various software programs can be used to modify and enhance an image as a visual statement for artistic and photojournalistic use. *Students are expected to supply a digital SLR camera (with full manual controls). Same course as SA 361. IFS*

PH 498 - Forensic Studies Experience (**3.00 cr.**) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in depth exploration of a topic associated with forensic or criminal investigation. *Written or electronic permission of a sponsoring faculty member. Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. IFS*

PS 337 - Analytical and Legal Reasoning (**3.00 cr.**) Uses various texts from judicial politics, legal theory, and rhetoric to explore the relationship between law and reason. Ideally suited for students interested in taking the LSAT, attending law school, or simply developing their reasoning skills. *IFS*

PS 338 - Constitutional Law I (**3.00 cr.**) Introduces students to the constitutional principles that structure governmental power, focusing in particular on the limits on governmental action imposed by federalism and the separation of powers. *IFS*

PS 339 - Constitutional Law II (**3.00 cr.**) Introduces students to the constitutional principles that govern the relationship between individuals and the state, focusing in particular on the limits on governmental action imposed by the due process and equal protection clauses of the Fourteenth Amendment. *IFS*

PS 343 - Crime, the Individual, and Society (**3.00 cr.**) America's means for controlling undesirable behavior include criminal law. Examines how much behavior criminal law controls; how crimes are handled by courts; and what notions of individualism, criminality, and "justice" emerge from criminal law process. *IU*

PS 374 - Thinking Through Terrorism (**3.00 cr.**) A team-taught, interdisciplinary approach that seeks to examine the causes and effects of contemporary terrorism and to develop critical perspectives concerning on-going efforts to combat it. Special attention is given to the tension between the interests of public security and those of democratic values, civil liberties, and moral principles. *Same course as PL 379*

PY 101 - Introductory Psychology (**3.00 cr.**) Surveys the multifaceted aspects of both the science and practice of psychology. Biological, cognitive, and social bases of behavior and mental processes are explored, as are the key features and importance of critical thinking skills and solid psychological research. *Fulfills social science core.*

PY 202 – Psychopathology (3.00 cr.) *Prerequisite: PY 101.* A study of abnormal behavior, cognition, and affect. The definition of abnormality is explored, as well as the concept of what constitutes a mental disorder. Classification of abnormality and theories regarding the development of disorders are discussed. Current research findings concerning specific mental disorders, ethical issues, and cultural diversity are explored. *Fulfills social science core and Group VI requirement.*

PY 253 - Multicultural Issues in Psychology (3.00 cr.) *Prerequisite: PY 101.* Designed to critically examine major multicultural issues in psychology. Conceptual, historical, philosophical, and theoretical issues are reviewed. Guidelines for psychological practice with ethnic and culturally diverse populations and the current status of multicultural psychology are examined. Self-reflection is emphasized as a means of learning about the dimensions of culture that each person possesses (e.g., racial identity, sexual orientation). *Fulfills social science core and Group VII requirement. IF*

PY 256 - Psychology of Gender (3.00 cr.) *Prerequisite: PY 101.* Examines research and theory regarding gender development. Topics include the social construction of gender, media representations of women and men, waves of feminism, intersectionality, parenting, relationships, sexual orientation, and masculinity. Students are challenged to critically evaluate research regarding sex differences using a multidisciplinary approach. *Fulfills social science core and Group VII requirement. Closed to students who have taken PY 254. IFS/IG (Fall/Spring)*

PY 418 - Research Seminar in Psychology I (3.00 cr.) *Prerequisite: PY 101.* An intensive exploration of a selected topic in psychology through a review of the literature and/or research using a small group seminar approach. *Written or electronic permission of the instructor. Prerequisites may vary according to topic. Fulfills Group I requirement. May be repeated once for credit with different topic.*

PY 419 - Research Seminar in Psychology II (3.00 cr.) *Prerequisite: PY 418.* Individual research guidance in selected areas. *Written or electronic permission of the instructor. Fulfills Group I requirement. May be repeated once for credit with different topic.*

PY 435 - Field Experience in Psychology I (3.00 cr.) *Prerequisite: PY 101.* *Restricted to junior or senior psychology majors.* By special arrangement with an individual and a selected agency, the student will engage in a supervised experience designed to develop psychological skills in a practical setting. *Written or electronic permission of the director of undergraduate field education. Fulfills Group I requirement.*

SC 101 - Self and Society (3.00 cr.) *Restricted to freshmen, sophomores, and sociology majors/minors (fall/spring only).* A microsociological view of the relationship between the person and the social world. The underlying theoretical assumption is that we construct our social reality through the process of social interaction. Through this interaction we learn the roles, norms, and values of our society—we learn to be social beings.

SC 107 - Social Problems (3.00 cr.) Studies common social problems using sociological, theoretical, and conceptual frameworks. Individual deviance, patterns of social injustice, specific problems affecting major U.S. institutions, and international issues are investigated. Various mechanisms and resources for solving and preventing social problems are explored. *Formerly SC 205. Fulfills social science core. IFS/IU*



SC 330 – Forensics (**3.00 cr.**) Forensic sociology examines the use of sociological data and its interpretation in decisions made by the agencies of the criminal justice system. Topics considered include racial profiling, family violence, the insanity defense, serial killing, mass murder, and criminal profiling.

*IFS*

SC 331 - Deviance and Social Control (**3.00 cr.**) An examination of the relationship between deviance and social control, including how and why certain forms of behavior come to be defined as deviant, the nature of formal and informal response to deviance, and the interaction of different social control institutions. An overview of general theories of deviance and the particular forms it takes, with special attention to issues that cut across the whole range of deviance. *IFS/IU*

SC 332 - The Sociology of Crime and Criminals (**3.00 cr.**) An historical and contemporary overview of the nature of crime and the causes of criminal behavior. Examination of the measurement of crime and crime trends. *IFS/IU*

SC 333 - Juvenile Delinquency (**3.00 cr.**) An introduction to the field of juvenile delinquency. Covers the history of juvenile crime and its treatment, major developments in the law, trends in youth crime and victimization, theories of causation and the current status of treatment programs. *IFS/IU*

SC 334 – Sociology of Policing (**3.00 cr.**) This course focuses on the institution of policing, its structure, function, and evolution. A critical criminology framework, employing intersectionality theories along with other theories of conflict and violence, is used to evaluate emerging trends and social factors that are increasingly implicated in shaping public policing. No longer merely a reactive protective force, policing is increasingly intertwined with national security. New developments in the private security industry, surveillance technology, as well as the technologies of war, are contributing to what experts refer to as "police militarization," which is rapidly changing the face of policing in the United States. *IFS/IU*

SC 347 - Special Topics in Criminology (**3.00 cr.**) Focuses on a specific issue, or issues, in the field of criminology. *May be repeated for credit three times with different topics. IFS*

SC 367 - Criminal Justice (**3.00 cr.**) *Prerequisite: SC 101, SC 102. Restricted to juniors and seniors.* An introduction to the structure and operation of the criminal justice system in the United States. Attention is focused on the individual and institutional level. Topics include criminal law, the police, the judicial system, victimology, and corrections. *IFS/IU*

SC 401 - Sociology Practicum and Seminar (**3.00 cr.**) *Prerequisite: SC 101, SC 102. Restricted to juniors and seniors.* Students develop career-relevant skills through participation in supervised work experience. Agency placements include courts, social services, counseling centers, research centers, and federal/state/local government. Relevant issues are discussed in weekly seminars. *Written or electronic permission of the instructor. Seminar format with limited enrollment. Interested students should contact the department chair or the instructor early in the fall semester before registering for the class. Students will not be permitted to enroll once the semester has started. (Spring only)*

SC 430 - Seminar: Gender and Justice (3.00 cr.) Prerequisite: SC 101 or SC 210. Restricted to juniors and seniors. Explores the capacity of the U.S. criminal justice system to deliver gender equal justice by also exploring how legislation, interpretation, and application of criminal law reflects gendered, raced, and classed assumptions about human nature, appropriate roles, and positions in society. Focuses on processing victims and offenders and access to legal employment. Seminar format with limited enrollment. IFS/IG

SC 434 - Seminar: Women and Deviance (3.00 cr.) Prerequisite: SC 101. Restricted to juniors and seniors. This seminar is divided into two parts. The first part of the semester examines the adequacy of traditional approaches to deviance in explaining the deviance of females. The second part focuses on selected problem areas: women and violence, substance abuse, and sexual deviance. Seminar format with limited enrollment. IFS/IG

SC 435 - Seminar: Forensic Sociology (3.00 cr.) Prerequisite: SC 101, SC 102. Restricted to juniors and seniors. The course considers the use of sociological data and its interpretation in decisions made by courts and other agencies of the judicial system. Areas considered may include profiling in law enforcement and corrections, spousal abuse, the death penalty, the CSI effect, and pornography. IFS

SC 498 - Forensic Studies Experience (3.00 cr.) A capstone experience in forensic studies in which a student may arrange an internship, independent study, or research experience with a faculty sponsor to engage in an in-depth exploration of a topic associated with forensic or criminal investigation. Written or electronic permission of a sponsoring faculty member. Generally completed during senior year; students should secure a faculty sponsor and obtain the approval of the forensic studies director by the end of junior year. IFS

ST 110 - Introduction to Statistical Methods and Data Analysis (3.00 cr.) Prerequisite: MA 004 or a score of 56 or better on Part I of the Math Placement Test or a math SAT score of 560 or better or a math ACT score of 24 or better or any other MA 100-level course. An introductory statistics course requiring no calculus. Statistical methods are motivated through real data sets. Topics include graphical summaries of data, measures of central tendency and dispersion, chi-squared tests, regression model fitting, normal distributions, and sampling. Technology will be used. Closed to students working toward B.S. or B.B.A. Closed to students who have taken EC 220 or EG 381 or PY 291 or ST 210 or ST 265 or ST 381. GT

ST 210 - Introduction to Statistics (3.00 cr.) Prerequisite: MA 109 or a score of 48 or better on Part II of the Math Placement Test or one year of high school calculus. A non-calculus-based course covering descriptive statistics; regression model fitting; probability; normal, binomial, and sampling distributions; estimation; and hypothesis testing. Degree credit will not be given for more than one of EG 381 or ST 210 or ST 265 or ST 381. Closed to students who have taken EC 220 or EG 381 or PY 292 or ST 265 or ST 381. GT/IFS

ST 265 – Biostatistics (3.00 cr.) Prerequisite: MA 109 or a score of 48 or better on Part II of the Math Placement Test or one year of high school calculus. A non-calculus-based course covering descriptive statistics, regression model fitting, probability, distributions, estimation, and hypothesis testing.

Applications are geared toward research and data analysis in biology and medicine. *Degree credit will not be given for more than one of EG 381 or ST 210 or ST 265 or ST 381. Closed to students who have taken EC 220 or EG 381 or PY 292 or ST 210 or ST 381. IFS (Spring only)*

TH 386 - Fundamental Questions of Morality (**3.00 cr.**) *Prerequisite: TH 201*. An analysis of contemporary, ethical theories with primary focus on a theory of basic human goods. Considers how norms for moral living are derived according to the principle of integral human fulfillment in those goods and discusses how that principle bears on issues of human life and sexuality. Also examines the relation of faith to morality, particularly the moral implications of hope for fulfillment in Christ. *IC/IFS*

WR 326 - Technical Writing (**3.00 cr.**) *Prerequisite: WR 100*. Helps students interested in business, the humanities, and the STEM fields prepare for jobs that require technical writing. Using industry-standard technology, such as Adobe Creative Suite and social media, students produce standard workplace documents, as well as instructions and technical descriptions. Students learn about project management, workplace ethics, and basic research methods through usability testing and user experience (UX) projects. Students collaborate in teams with clients or community partners to develop high-impact, visually dynamic documents such as grant proposals, websites, and multimedia applications. *IFS*

**Table 1: Resources**

Resource categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Reallocated funds					
2. Tuition/fee revenue	13806	23700	36630	50280	51780
<i>a. Number of full-time students</i>	1	2	3	4	4
<i>b. Credit hour rate</i>	767	790	814	838	863
<i>c. Annual credit hours</i>	18	15	15	15	15
<i>d. Total full-time revenue (a x b x c)</i>	13806	23700	36630	50280	51780
<i>e. Number of part-time students</i>					
<i>f. Credit hour rate</i>					
<i>g. Annual credit hours</i>					
<i>h. Total part-time revenue</i>	0	0	0	0	0
3. Grants, contracts, and other external sources					
4. Other sources					
Total	13806	23700	36630	50280	51780

**Table 2: Expenditures**

Expenditure categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b+c below)	7953	8223	8502	8790	9089
<i>a. No. FTE faculty</i>	0.13	0.13	0.13	0.13	0.13
<i>b. Total salary</i>	6130	6314	6503	6698	6899
<i>c. Total benefits</i>	1823	1909	1999	2092	2190
2. Administrative staff	0	0	0	0	0
<i>a. No. FTE administrative staff</i>					
<i>b. Total salary</i>					
<i>c. Total benefits</i>					
3. Support staff	0	0	0	0	0
<i>a. FTE administrative staff</i>					
<i>b. Total salary</i>					
<i>c. Total benefits</i>					
4. Equipment					
5. Library					
6. New or renovated space					
7. Other expenses	3350	1500	1500	1500	1500
Total	11303	9723	10002	10290	10589

## Addendum



LOYOLA UNIVERSITY MARYLAND

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The forensic studies major curriculum will bestow the following learning and curricular outcomes:

*University objectives for learning outcomes specifically supported by the Forensic Science major:*

- Intellectual excellence
- Critical understanding
- Eloquentia Perfecta
- Leadership
- Promotion of justice

*Curricular Outcomes specifically supported through the Forensic Studies curriculum:*

- Students will master current factual content, concepts, theoretical perspectives, and historical trends of different subfields of forensic studies.
- Students will demonstrate proficiency in communicating effectively in a variety of formats, including verbal, written, and symbolic channels, relevant to forensic investigation, criminology, and presentations in the judicial system.
- Students will develop an understanding of the moral and ethical issues surrounding crime and forensic investigation.
- Students will demonstrate a clear understanding of major concepts and techniques used in subfields of forensic studies based on their ability to read, interpret, and critically evaluate primary literature; design experiments or conduct independent investigation to test ideas and hypotheses; and interpret data through statistical and graphical packages.
- Students will demonstrate an understanding of the personal, economic, and environmental factors that lead to individuals committing crimes and how this underlying knowledge influences how crimes are investigated.

Forensic Studies curriculum map

<i>Institutional learning aim</i>	<i>Program learning aim</i>	<i>Course(s)</i>
Excellence in a discipline, including understanding of the relationship between one's discipline and other disciplines; understanding the interconnectedness of all knowledge	Students will master current factual content, concepts, theoretical perspectives, and historical trends of different subfields of forensic studies.	BL 351, BL 355, BL 428, PY 202, PY 421, SC 330, SC 367



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Demonstrate the ability to use speech and writing effectively, logically, gracefully, persuasively, and responsibly	Students will demonstrate proficiency in communicating effectively in a variety of formats, including verbal, written, and symbolic channels, relevant to forensic investigation, criminology, and presentations in the judicial system.	BL 118, BL 119, BL 121, BL 126, BL 351, BL 355, BL 428, BL 498, CH 498, CM 498, CS 115, CS 151, EG 381, EG 490, HS 330, HS 353, HS 382, IS 358, PY 435, PY 498, SC 401, SC 498, ST 210, ST 265, WR 326
Critical understanding of and competence in a broad range of communications media		
Ability to use mathematical concepts and procedures competently, and to evaluate claims made in numeric terms		
An appreciation of the great moral issues of our time: the sanctity of human life, poverty, racism, genocide, war and peace, religious tolerance and intolerance, the defense of human rights, and the environmental impact of human activity	Students will develop an understanding of the moral and ethical issues surrounding crime and forensic investigation.	BL 101, BL 351, BL 428, EC 320, EC 330, LW 103, LW 104, LW 109, PL 337, PL 342, SC 107, SC 331, SC 332, SC 430, SC 434, TH 386
Ability to analyze and solve problems using appropriate tools	Students will demonstrate a clear understanding of major concepts and techniques used in subfields of forensic studies based on their ability to read, interpret, and critically evaluate primary literature; design experiments or conduct independent investigation to test ideas and hypotheses; and interpret data through statistical and graphical packages.	BL 473, BL 498, CH 498, CS 151; CM 498, EG 490, IS 358; PH 498, PY 418, PY 419, PY 435, PY 498, SC 401, SC 498
Awareness of the multiplicity of perspectives that bear on the human experience, and the importance of historical, global, and cultural context in determining the way we see the world	Students will demonstrate an understanding of the personal, economic, and environmental factors that lead to individuals committing crimes and how this underlying knowledge influences how crimes are investigated.	BL 101, BL 473, EC 330, PY 202, PY 421; SC 330, SC 367



**Table 1: Resources**

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1. Reallocated funds	0	0	0	0	0
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<i>a. Number of full-time students</i>	1	2	3	4	4
<i>b. Credit hour rate</i>	767	790	814	838	863
<i>c. Annual credit hours</i>	18	15	15	15	15
<i>d. Total full-time revenue (a x b x c)</i>	13806	23700	36630	50280	51780
<i>e. Number of part-time students</i>	0	0	0	0	0
<i>f. Credit hour rate</i>	0	0	0	0	0
<i>g. Annual credit hours</i>	0	0	0	0	0
<i>h. Total part-time revenue</i>	0	0	0	0	0
3. Grants, contracts, and other external sources	0	0	0	0	0
4. Other sources					
Total	13806	23700	36630	50280	51780

The program projects four new and additional students by its fifth year with the credit hour rate based on an assumption of a 3% annual increase in tuition. Credit hours are based upon a typical annual student load.

**Table 2: Expenditures**

Expenditure categories	Year 1	Year 2	Year 3	Year 4	Year 5
1. Faculty (b+c below)	7953	8223	8502	8790	9089
<i>a. No. FTE faculty</i>	0.13	0.13	0.13	0.13	0.13
<i>b. Total salary</i>	6130	6314	6503	6698	6899
<i>c. Total benefits</i>	1823	1909	1999	2092	2190
2. Administrative staff	0	0	0	0	0
<i>a. No. FTE administrative staff</i>	0	0	0	0	0
<i>b. Total salary</i>	0	0	0	0	0
<i>c. Total benefits</i>	0	0	0	0	0
3. Support staff	0	0	0	0	0
<i>a. FTE administrative staff</i>	0	0	0	0	0
<i>b. Total salary</i>	0	0	0	0	0
<i>c. Total benefits</i>	0	0	0	0	0
4. Equipment	0	0	0	0	0
5. Library	0	0	0	0	0
6. New or renovated space	0	0	0	0	0
7. Other expenses	3350	1500	1500	1500	1500
Total	11303	9723	10002	10290	10589

Benefits are based on benefits overheads of 29.74%, 30.24%, 30.74%, 31.24%, 31.74% on gross salaries. 'Other expenses' refer to course release costs to facilitate a faculty member's time acting as program coordinator.