D4CS Registration Tips for  
Spring 2013 

Below is an annotated list of the FCM courses available in Spring 2013 along with CRJ and other courses that are likely candidates as electives for degree candidates. We are lean on courses this semester because of the need to cancel FCM740 due to faculty availability so if you have issues in filling your schedule please see Professor Lovely. However, given that we regard three courses as a full-time load for D4CS and most students only take one or two courses a semester we are confident all students will have a satisfactory program of study for the coming semester.

D4CS Courses offered in Spring 2013

FCM 700. Theoretical Foundations of Computing Security  
The theoretical foundations of computing and systems analysis are discussed. Topics include combinatorial and counting methods, graph theory, recurrence relations, theory of computation, and complexity analysis. Examples concerning the modeling and analysis of networks, routine protocols, scheduling problems, and algorithm and software complexity are used to illustrate the principles involved. (Prerequisites: Undergraduate FCM course requirements)  

Professor Doug Salane will be offering a revised edition of the course he offered in Spring 2012. Prior editions of this course, as reflected in the catalog description, provided a mathematically grounded survey of core concepts of computing security. The faculty resolved that consistent with the program's professional orientation that rather than focus on fine theoretical concepts, such as recurrence relations, theory of computation, and complexity analysis, the course would be more helpful if it considered computing security with a broader contextual brush reflecting current problems in what is often referred to as information assurance. Drawing on his experience at Carnegie Mellon where he was a fellow in a faculty program on information assurance and cybersecurity, the course will provide practice as well as theory. For students who choose to graduate under the old FCM program of study, this is a required course in the program of study. For students who choose to graduate under the D4CS program of study, this course serves as an elective. Please be aware that we are using FCM 700 as a shell for a revised approach to this course and ultimately we expect a revision of the course description to match the approach that will be taken by Professor Salane. There are no prerequisites for this course.

This course is a calculus-based course intended to provide a solid understanding of probability and mainstream statistical techniques for research and professional applications in the field. (Prerequisite: One year of undergraduate calculus.)  

FCM 705 is an elective being taught by Professor Shaobai Kan. Actually, it would not be unreasonable if this were a required course as statistical methods are becoming ever more important in digital forensics.
Indeed it might soon become so for forensic data analysis, using techniques such as data mining and link analysis, has become a commonly used technique, especially in network forensics and security. This course provides a footing upon which to build expertise in these areas of growing forensic importance. A nice feature of this course is you get to mix it up with the other CSI types, forensic science students.

**FCM 740. Data Communications Forensics and Security  (CANCELLED)**

As result of faculty sabbaticals and the unavailability of a suitable replacement this course has been canceled for Spring 2013.

**FCM 742. Network Security**

Fundamentals of computer networks and distributed processing. Network security policy, risk assessment and management, and protocols for secure network infrastructures are emphasized. (Prerequisites: Undergraduate FCM course requirements).

Network Security, a required core course, will be taught in Spring 2012 by Professor Shamik Sengupta, which he also taught in Spring 2011. The course will be taught in the new D4CS Cybersecurity Lab where you can expect a rich blend of theory and practice.

**FCM/CRJ 727  Cybercriminology**

An exploration of the links between computers, deviance and social control. This will include an analysis of the technological, social and geo-political context from which cybercrime and information warfare have emerged and the nature, extent and causes of digital deviance, such as hacking and cyber-terrorism. Societal and political reactions to cybercrime are considered, as are social policy questions of privacy and freedom on the Internet.

This course, taught by Professor Lovely, explores the relationship of the Internet to the rise and control of cybercrime. Topics range from study of hacking and hackers to phenomenon such as digital theft and cyberterrorism. The goal for D4CS students is to provide understanding of the link between the problems of digital investigators and cybersecurity specialists and the world within which they work. There are no prerequisites for this course so if you have a problem registering see Professor Lovely.

**FCM/CRJ 752  The Law and High Technology Crime**

A survey of basic constitutional and statutory issues pertaining to high technology crime and its investigation. Special attention is paid to the rules of evidence as they apply to electronic or digital evidence, the role of expert witnesses, and the laws and regulations governing electronic surveillance.

This is a required course offered by Professor Adina Schwartz. She uses a case based approach so you learn how to ‘read’ a case and how the law applies to digital evidence. You will also have a chance to meet CRJ graduate students who also take this course.

**FCM 780  Capstone Seminar and Fieldwork**

Supervised fieldwork on a forensic computing case or a computer security problem, sometimes with the participation of program faculty. The fieldwork is complemented with a biweekly seminar with a corporate partner of the graduate program. Students are assigned to work with either an agency or corporate partner of the graduate program.

**Prerequisite:** Successful completion of FCM 753, FCM 760 and the program's Applied Digital Forensic Science Exam.

Fieldwork through an internship is one of the D4CS capstone options. Before you can be assigned to a D4CS internship, you need to pass the Applied Digital Forensic Science Certification Exam. See Professor Lovely about this well in advance of the time you anticipate wanting to do an internship as your capstone experience. Registration for fieldwork is handled as an independent study so this courses does not appear in the course schedule. To register you need to see Professor Lovely.
FCM 787, FCM 788, FCM 789  Cooperative Education
Offers experiential education through employment in a position that entails duties substantially related to digital forensics or cyber security. Student may alternate between coursework and Coop position or do both contemporaneously. May be taken sequentially or all at once. **Prerequisites:** FCM 710 or FCM 742 and permission of the program director.

*The Coop option gives you chance to seek and link part-time or full-time employment in a job related to digital forensics and cybersecurity. Registration for this course is handled as an independent study through the program director and not through SIMS. If you are interested in doing a Coop please see Professor Lovely.*

FCM 791 Forensic Computing Prospectus Seminar
Assists in the identification and delineation of researchable topics. Provides an introduction to scholarly and research report writing, library research, and documentation styles and techniques. Development by the end of the semester of a thesis prospectus. **Prerequisite:** Permission of the program director.

*There are two capstone options that entail supervised research projects: a Thesis or Applied Research Project. We use FCM 791 for both options which are handled as independent studies so they do not appear in the course schedule. Doing a thesis requires that you enlist a faculty sponsor to act as your thesis advisor before you can register for FCM 791. If you opt for the Applied Research Project, the program director will match you with a faculty member who will act as an advisor for your project. Registration is handled as an independent study so see Professor Lovely.*

FCM 794 Independent Study

*You are able to credit one independent study toward your degree. It needs to serve as an elective in your program of study. To do so, you must arrange to take an independent study with a faculty member who agrees to serve as your mentor for the course. A GPA of 3.5 or better is required by the Dean's office to take an independent study. The topic can be anything that you and your mentor agree on and for which you develop a plan of study that is indicated on an Independent Studies form. You have up until the end of the second week of classes to register for FCM 791, which entails getting the proposal approved by the Dean of Graduate Studies. Most faculty know the drill for independent studies but see Professor Lovely if there are questions.*

Likely non-FCM D4CS electives

*There are numerous courses in the John Jay catalog that might enhance your professional development or interests. The course below seem most likely to be of interest to D4CS students, albeit you should look for yourself to see if anything else strikes you interest. Sometimes you need to get clearance to take a course outside of your program.*

CRJ 708 Law, Evidence and Ethics
Examines the rules of evidence followed in criminal investigations, criminal trials and administrative proceedings. Pays special attention to the methods and ethical obligations of government agents assigned to gather evidence.

*This is a formerly required course that was replaced by CRJ/FCM 752, Law and High Technology Crime. However, if you are interested in the legal issues surrounding the handling of evidence this course would supplement your knowledge as it concerns more generic issues. It is also a rare Saturday offering.*

CRJ 710 Issues in Criminal Justice I: Theory and Courts
Begins an overview of the operations and problems of the criminal justice system. Examines crime statistics, the causes of crime and other issues of concern to criminologists. Highlights the role of the courts and the legal constraints derived from the Constitution on arrest, prosecution and conviction.

This is a formerly required course that is now an elective in the D4CS degree program. It is team taught by a lawyer and a criminologist. It has proven to be a good vehicle to get a sense of the constraints imposed by courts on law enforcement, an overview of the crime problem and to sharpen your critical writing skills.

CRJ/PAD 755 Writing for Management
Designed to develop the writing skills needed for public service and administration as well as for graduate-level seminars. Training and practice in management correspondence, proposals, directives, reports, abstracts and job applications.

The ability to write will enhance any career. While some students are obliged to take this course to shore up their writing ability, one recent grad who took this course as an elective thinks all FCM students should take it.

CRJ/PAD 750 Computer Security
Surveys organizational responses to situations that compromise the integrity of information and technology. Reviews the legal basis for privacy and security of information and related technology. Presents methods and procedures for assessment of risk, and examines strategies for mitigation of risk involving operational procedure, software and hardware, and building systems.

Professor Adam Wandt, from the Public Management department and the newest member of the Digital Forensics faculty, teaches this course. As a lawyer, he highlights laws relevant to computer security such as the CCFA.

CRJ 733 The Constitution and Criminal Justice
Provides an intensive review of recent landmark Supreme Court decisions that interpret Constitutional guarantees and limit government actions. Examines problems of reconciling individual rights with societal concerns about safety and crime prevention.

This is a rare chance to take a Saturday course that will count as an elective. It offers a helpful look at how the U.S. Constitution affects the way we handle criminal cases.

CRJ 753 Investigating Cybercrime
Study of the legal, ethical and organizational issues, as well as investigative techniques associated with forensic computing cases. The various organizational models used in computer crime investigations and transnational cooperation are considered.

This course is intended as a non-technical survey course about investigating cybercrime for students in other programs than the FCM program. It will focus on the investigative rather than the technical side of dealing with cybercrimes and managing digital evidence. The prerequisites for the course listed in the catalog have been eliminated. The instructor for this course has not yet been affirmed.

CRJ 751 Crime Scene Investigation
Analyzes issues related to the investigation of crime scenes. Reviews the legal rules, derived from the Fourth Amendment and the laws of evidence that investigators must master in order to maintain the legal integrity of the crime scene search and that of any evidence seized during the crime scene investigation. Examines, in depth, the
scientific principles and procedures essential to thorough, effective handling of physical evidence at a crime scene investigation. Discusses specific types of evidence, including fingerprints, firearms evidence, arson evidence and DNA evidence.

*If you are interested in general investigation procedures, this course would be a useful elective.*

**PMT 781 Risk Analysis and Loss Prevention**
Introduces the theory and practice of risk management, as applied to the security and safety of persons and property. Examines the management of risk associated with a range of conditions and events including, fire, building systems, crime and terrorism, security deficiencies, worker safety, hazardous and toxic materials, disasters and emergencies. Considers analytical software applications in the risk analysis process.

*This may not seem like an obvious choice for an FCM student; however, the problem of risk analysis has a strong role in concern for cybersecurity and information assurance within organizations. As this course takes a generic approach to the problem, the theories here will prove helpful to a career in information assurance. The instructor for the course is Professor Charles Jennings who offers a strong mix of professional experience and academics. He advises he would welcome FCM students in the course. You will be able to do your practical exercises based on cybersecurity problems.*

**For CSIBridge students**

*CSIBridge students should not approach FCM 709 as a normal three credit course. The work in the course will greatly exceed the normal work load for a three credit course as the goal is not to earn course credit but to learn enough about computing to be able to compete with students who were computer science majors. Keep in mind that the CSIBridge concept effectively compresses the time for preparation for the program from four or five semesters of undergraduate courses to two CSIBridge Foundations courses. Thus, the task should not be taken lightly as students must demonstrate readiness in order to move on in CSIBridge and transfer to the degree program. Thus, CSIBridge students are advised to take only FCM 709. If you wish or need to take another course in addition to FCM 709 you need approval from the program director so make arrangements to see Professor Lovely.*

**FCM 709 Foundations for Digital Forensics II**
This course is an intensive introduction to selected concepts and theories from mathematics, programming, data structures, and algorithms that are the bedrock of computer science. Topics covered are essential to the study of scientific digital forensics. Detailed theoretical and conceptual development of topics is complemented by practical laboratory exercises.

*This course is for students in CSIBridge, the Computer Science for Digital Forensics Certificate Program. The course asks the near impossible – to teach you programming and its associated topics of data structures and algorithms in one semester. The courses will be taught by Professor Hunter Johnson who will be initiating an online lab session for the course.*
Spring 2013 Courses by Day of the Week Offered

FCM Courses

Tuesday 6:15-8:15PM  FCM 742 Network Security
Wednesday 4:05-6:05PM  FCM 752 Law and High Technology Crime
Tuesday 6:15-8:15PM/Wednesday 6:15-7:15PM  FCM 709 Foundations for Digital Forensics II
(Note: The schedule shows a Thursday lab but this will likely be online.)
Wednesday 6:15-8:15PM  FCM 705 Mathematical Statistics for Forensic Analysis
Wednesday 6:15-8:15PM  FCM 727 Cybercriminology
Thursday 6:15-8:15PM  FCM 700 Theoretical Applications of Computing Security

Suggested Electives

Monday 6:15-8:15PM  PMT 781 Risk Analysis and Loss Prevention
Monday 8:20-10:20PM  CRJ 751 Crime Scene Investigation
Tuesday 6:15-8:15PM  CRJ 710 Issues in Criminal Justice I: Theory and Courts
Wednesday 6:15-8:15PM  CRJ 710 Issues in Criminal Justice I: Theory and Courts
Wednesday 6:15-8:15PM  CRJ 753 Investigating Cybercrime
Wednesday 6:15-8:15PM  CRJ 750 Computer Security
Thursday 6:15-8:15PM  CRJ/PAD 750 Computer Security
Thursday 6:15-8:15PM  CRJ/PAD 755 Writing for Management
Thursday 8:20-10:20  CRJ 733 The Constitution and Criminal Justice
Saturday 9:25-11:25AM  CRJ 708 Law, Evidence and Ethics