Guidelines and Tips for
Fall 2015 D4CS Registration

These are some guidelines and tips for the Fall 2015 semester for students in the D4CS master's degree and CAD4SCI programs. They may also be of interest to CSIBridge students who would like to take a non-technical course. If you have any questions about the information provided here please contact Professor Lovely. With luck the information below is correct but be sure to check things such as scheduling times yourself and if you see any errors please report them.

Fall 2015 FCM and Related Courses

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Monday</th>
<th>6:15-8:15PM</th>
<th>FCM 760 Forensic Management of Digital Evidence</th>
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<tbody>
<tr>
<td></td>
<td>Tuesday</td>
<td>6:15-8:15PM</td>
<td>FCM 710 Architecture of Secure Operating Systems</td>
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<td></td>
<td>Wednesday</td>
<td>6:15-8:15PM</td>
<td>CRJ/FCM 752 Law and High Technology Crime</td>
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<td>Wednesday</td>
<td>6:15-8:15PM</td>
<td>FCM 753 Digital Forensic Applications</td>
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<tr>
<th>Designated Electives</th>
<th>Monday</th>
<th>6:15-8:15PM</th>
<th>FCM 745 Network Forensics</th>
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<tr>
<td></td>
<td>Tuesday</td>
<td>4:05-6:05PM</td>
<td>CRJ 733 The Constitution and Criminal Justice</td>
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<td>Tuesday</td>
<td>4:05-6:05PM</td>
<td>CRJ/FCM 727 Cyberciminology</td>
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<td>Wednesday</td>
<td>4:05-6:05PM</td>
<td>CRJ/PAD 750 Computer Security</td>
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<td>Thursday</td>
<td>6:15-8:15PM</td>
<td>CRJ 708 Law Evidence and Ethics</td>
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<td></td>
<td>Saturday</td>
<td>9:25-11:25AM</td>
<td>FCM 802 Cyber Risk Assessment and Management*</td>
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<tr>
<th>Selected Electives**</th>
<th>Monday</th>
<th>8:20-10:20PM</th>
<th>CRJ 751 Crime Scene Investigation</th>
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<tr>
<td></td>
<td>Tuesday</td>
<td>4:05-6:05PM</td>
<td>CRJ/PAD 755 Writing for Management</td>
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<td></td>
<td>Wednesday</td>
<td>4:05-6:05PM</td>
<td>CRJ 744 Terrorism and Politics</td>
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<td></td>
<td>Wednesday</td>
<td>6:15-8:15PM</td>
<td>CRJ 753 Investigating Cybercrime</td>
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<td></td>
<td>Thursday</td>
<td>6:15-8:15PM</td>
<td>CRJ 708 Law, Evidence and Ethics</td>
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<td>Friday</td>
<td>3:00-5:00PM</td>
<td>CRJ 772 Seminar on Terror Studies</td>
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| CSIBridge***         | Wednesday | 6:15-8:15PM | FCM 708 Foundations for Digital Forensics I |

* This is a new course that can be applied toward the required three Forensic and Security Electives needed in the degree requirements.

** These are electives commonly taken by D4CS students. You are free to take these CRJ courses or others as an elective; however, because they are not designated in the D4CS program of study, you likely need to obtain contact Professor Lovely to get permission to do so.

*** This course is for CSIBridge Express students. See Prof Lovely for information.
Advising for Fall 2015 Registration

Registration Appointments. If you got notice of a ‘registration appointment’ that is the time when you are first permitted to register on CUNYFirst.

Advising Sessions for Continuing Students. An advising session for continuing students is not required; however, highly recommended. It is also nice to just touch base. Feel free to consult with Professor Lovely or another member of the D4CS faculty to explore fieldwork, research and career prospects.

Advising Sessions for Entering Students Required. Entering D4CS degree, CAD4SCI, and CSIBridge students are required to have an advising session, either in the office or by phone, before registration.

Advising Appointments with Professor Lovely

• During Spring 2015 Semester. If you would like to have an advising session during the Spring 2015 semester, please use Professor Lovely's online client to book an appointment. Extra evening advising times have been scheduled for late April to mid-May. Office or phone appointments are fine.

• Summer Appointments. Over the summer, the online client is not in service as time in the office is random so please request a phone appointment by email.

• Email Advising. Alternatively, if you want to pose questions or seek clearance for registration for electives, email usually works to figure things out. You may also consult with other D4CS faculty members for general advice about courses.

Course Load: Take at most two if you work full-time and three if you don't

How many courses should you take? A prudent and mature approach to your course load is critical because a rigorous graduate program can be quite stressful. Thus, you need to balance the demands of work, family and school. We insist on rigor unapologetically in keeping with our goal to equip you to be a professional whose skills and judgement will affect the quality of justice and public safety after you graduate. We also appreciate that most students want to complete degree requirements in as few semesters as possible.

With those factors in mind, we strongly recommend that an optimal semester course load is two courses if you are working full-time and three if you are not and your primary focus is on your graduate studies. Some students measure their competing responsibilities and may even limit themselves to one course. Of course, under CUNY rules you are free to enroll for four courses if you wish.

Moderation of the number of courses you take not only enhances your capacity to do your best in courses. A more subtle benefit is you will have time to engage in the unique opportunities that can and should be an important dimension of graduate school, such as doing research with faculty, attending lectures and conferences, experimentation in the D4CS labs, and when you approach graduation looking for a position.

The reality is, given the pace of our course offerings and the prerequisite structure, even if you are full-time as defined by CUNY (12 hours), the D4CS program will likely take four semesters. However, even at a three course pace, you can graduate in three or four semesters is possible with summer work.

Keep in mind our goal is to educate you to fuel your career and not train you just to get a job. So take it slow and enjoy the learning. Thus, our academic and personal advice is take at most two courses if you work full-time and three if you don't.*

Balanced Course Selection

Many students find it beneficial to balance their course selection with a combination of technical and non-technical courses. For example, an entering student who takes three courses in Fall 2015 might take FCM 710, FCM 760 and one of the non-technical courses available (e.g., CRJ/FCM 727, CRJ/PAD 750).
Annotated Course List for Fall 2015

To help you select courses for Fall 2015, below is an annotated list of the FCM (Forensic Computing) courses available followed by a list of other courses that are likely candidates as electives.

Required FCM Courses

The design, implementation and administration of modern operating systems are reviewed. Topics covered include concurrent execution, process and memory management, local and networked file systems. Security models, access control mechanisms and security enhanced versions of current operating systems are discussed. Prerequisites: Admission to D4CS degree program or CAD4SCI.

NOTE: PENDING CATALOG CHANGE FOR FCM 710. The D4CS faculty has approved a new course description and change in title for this course which will not likely be approved to be in the catalog until Spring 2016. However, the new description will be the working description for when the course is offered in Fall 2015. Here is the new title and description approved by the D4CS faculty:

Architecture and Vulnerabilities of Operating Systems
A comparative survey of operating system vulnerabilities and their forensic issues. Topics covered include security features of the kernel, process and memory management, files systems, and rootkit attacks. Theoretical concepts are applied in practical exercises.

This edition of FCM 710 will be taught by Professor Aftab Ahmad, the newest member of our full-time faculty. The course will be geared to renewing essential knowledge of operating systems with a focus on their forensic vulnerabilities and security features. This course serves as one of the core courses for the program of study and new students should be sure to take it.

FCM 760 Forensic Management of Digital Evidence.
Students are introduced to information systems used in forensic computing and the methods for analyzing the information exposed by these systems. Emphasis will be on technology permitting the retrieval, preservation and analysis of computer data that might be used in potential legal cases. Among the topics studied are evidence collection and preservation, data copying, data warehousing and data mining, probability and statistics methods, classification, prediction and cluster analysis. Prerequisites: Admission to D4CS degree program or CAD4SCI.

This is a required core course in the degree and CAD4SCI programs of study. Although the catalog says and CUNYfirst will expect FC 710 as a prerequisite for FCM 760, we have not put that into effect in practice. So if you have not had FCM 710 and want to take FCM 760, please let Professor Loovely so we can clear you to do so. The course will be taught by Professor Jinwoo Kim who has taught this course many times over the years. You will learn about digital forensics as a science using open source and mainstream software and tools with multiple projects. Entering students who are able to take two or more courses should take this course.

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. Prerequisites: None.

This is a required course normally offered by Professor Adina Schwartz. As she is on sabbatical in Fall 2015, we have recruited Professor Kamila Memendola to spell her. Professor Memendola recently gave a Center for Cybercrime Studies lecture on the law and procedure for eDiscovery. We look forward to her joining the program’s faculty as she is a John Jay graduate who went on to UC Berkeley, a premier law school, and who has impressive credentials in the law of high tech crime. This course is normally offered every semester so it is not as crucial for new students to take it as FCM 710 and FCM 760.
FCM Forensic and Security Electives

FCM 745. Network Forensics
Concerns the forensic security issues related to access to data stored on computer systems and the transmission of data between systems. Topics include detecting and monitoring intrusions of networks and systems, authentication protocols, viruses and worms and management of intrusion response teams. The course includes laboratory work such as attack and defend exercises. Prerequisites: FCM 710, and FCM 742.

Professor Ping Ji will be teaching Network Forensics in Fall 2015 to followup her offering of FCM 742 in Spring 2015. We are experimenting with having the same instructor for both FCM 742 and FCM 745. Of course, if you are off cycle for FCM 745, you should still be ok. While this course is an elective for the degree program, it is required to earn the CAD4SCI and recommended before you take the QUE.

FCM 802 Cyber Risk Assessment and Management
Explores cybersecurity and information assurance from the perspective of risk management to develop strategies to mitigate and manage risks. Focuses on assessment strategies for effective mitigation measures and risk management practices in terms of cybersecurity. Covers risk management fundamentals, managing risk in terms of cyber threats, exploits and vulnerabilities, managing risk in an environment of regulatory compliance, and the preparation and execution of risk assessments. Prerequisites: Familiarity with Information Technology.

(NOTE: This course can count as a Forensic/Security elective in the D4CS program of study.)

FCM 802 was taught for the first time last Fall and was well-received. It will to be taught again by Professor Robert Shullich. He has vast experience as an Information Security Architect, a collection of graduate and professional degrees, including one from D4CS, along with various certifications (CISSP, CISA, CISM, CRISC, GSEC, CPP). The course provides knowledge and tools managers and practitioners need to manage cyber risk both in the private and public sectors. The course will be a bit different than most FCM technical courses in that it will focus on the managerial problems associated with information assurance and cybersecurity, vital skill sets for someone who plans to work in those areas either as a consultant, manager or practitioner. The course will be offered on Saturday mornings, a time slot that was successful last semester.

Criminal Justice Electives

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. Prerequisites: None.

This course is taught by Professor Lovely and the course description fairly well captures the ground covered. The goal for D4CS students is to provide a context for understanding cybercrime and its control. The course also offers D4CS students valuable opportunities to explain technical concepts to non-technical students, a valuable skill to have.

CRJ/PAD 750 Security of Information and Technology
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. Prerequisites: None.

Professor Adam Wandt, from the Public Management department and a member of the D4CS faculty, teaches this course. As a lawyer, he highlights statutory law relevant to computer security such as the CCFA as opposed to the case law considered in FCM 752. He also provides an organizational perspective on computer security and considers a bunch of practical tools.
CRJ 708 Law, Evidence and Ethics
Examines the rules of evidence followed in criminal trial and administrative proceedings. Pays special attention to the methods and ethical obligations of government agents assigned to gather evidence. Prerequisites: None.

Professor Steve Wasserman, a venerable adjunct and accomplished Legal Aid appellate lawyer has taught this course for years. It provides a broader view of the rules of evidence than does the more focused FCM 752.

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.

If you develop a general interest and curiosity about the constitutional limits of law enforcement, you could find this course edifying. The instructor is Professor Dolores Jones, a long time member of the Law and Police Science Department.

FCM Capstone Courses

FCM 753 Digital Forensic Applications
Intensive application of computer and network forensics in simulated casework along with critique of actual cases. Includes design of a digital forensics lab, forensic analysis, preparation of case reports and expert testimony. Prerequisites: FCM 710, FCM 742, FCM 752, FCM 760.

FCM 753 is part of the capstone for the program. Its role is to provide a course in which you review and advance skills in applying what you have learned in prior core courses to cases. Professor Carl Wong has been tapped to teach this course again. He is an early graduate of our program who has garnered extensive experience in various roles with Guidance Software and now with ConEd. You should expect a good bit of practical work to which you will apply theory gleaned from the prerequisite courses.

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 by biweekly seminars. 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 a grade of low-pass or better on the program's qualifying exam (QUE): the Applied Digital Forensic Science Qualifying Exam.

See Professor Lovely about this course well in advance of the time you anticipate wanting to do fieldwork, especially if you wish to win a spot with the Manhattan District Attorney's office (DANY) or with a federal agency. Registration for FCM 780 requires permission of the Director. You are free to look for an internship either on your own or through the college's Graduate Academic Internship Program; however, to gain the assistance of the D4CS program director to do so, you need to first get a grade of Low-Pass or better on the Applied Digital Forensic Science Certification Exam (QUE). If you find your own internship, you are free to request permission to enroll in FCM 780; however, FCM 780 will only count for your capstone experience if you subsequently earn a grade of Low Pass or better on the QUE. We expect the next QUE to be offered in late August before classes begin for the Fall 2015 semester.

FCM 791 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.
We use this course for both the thesis and for the Applied Research Project (ARP) capstone options. Doing a thesis requires that you enlist a faculty sponsor to act as your thesis advisor. If you are looking to do an ARP, you may recruit a faculty ARP adviser on your or ask the program director to match you with a faculty member who will act as an advisor. Registration for the capstone option is done as an independent study through the program director with your thesis or ARP adviser as the instructor of record. You complete the Graduate Thesis Prospectus Form and after it is signed by your adviser and the program director you submit it to the Registrar station at Jaystop to get registered for FCM 791. You have until the end of the second week of classes to submit the form to the Registrar.

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 blend part-time or full-time employment in a job related to digital forensics and cybersecurity with your academic program. Registration for this course is handled as an independent study through the program director and not through the college internship office. If you are interested in doing a Coop please see Professor Lovely.

FCM 794 Independent Study
Under graduate school rules, you are allowed one independent study to count toward D4CS degree requirements. It could stand as either a Forensic/Security or Criminal Justice elective. To enroll for an independent study you must find a D4CS faculty member to agree to facilitate your study and act as your advisor. Typically faculty are most agreeable to sponsor an independent study for better students who have a topic in mind that dovetails with the faculty member’s research interests. Although exceptions may be granted, Graduate Studies rules require a GPA of 3.5 or better to undertake an independent study. You may register for FCM 794 either before or up until the end of the second week after the semester begins; however, you need the signatures of both the instructor and the Dean of Graduate Studies so don’t wait until the last minute. Registration is done by submitting an Independent Study Prospectus form to the the Office of Graduate Studies for approval. You can download the form here: Independent Study Form

Likely Other Courses for Consideration as Electives

NOTE: The D4CS program of study provides for one ‘wild-card’ elective. Use the choice wisely to enhance your professional development or indulge a special interest. The courses listed below are likely choices but you are free to take any graduate course for which you meet pre-requisites. Most CRJ, ICJ, PMT, and SEC courses have no prerequisites while most FOS, PSY and PAd courses do. To enroll in any course not designated in the D4CS program of study, you need to gain permission from the hosting program director. Alert Professor Lovely by email that you wish to enroll in an out-of-program course to facilitate gaining permission.

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. Prerequisites: None.

This was a required course in the former FCM degree requirements. 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. Alert Professor Lovely that you wish to take this course in order to receive clearance to register for it.

CRJ 746 Terrorism and Politics
 Discusses the history of terrorism, especially since the French Revolution; its evolving definition and how it relates to state violence; and its protean contemporary forms. Examines topics including the attacks on the World Trade Center, Middle Eastern terrorism from the Palestinian Hamas movement and Israeli religious violence, to state terrorism in countries such as Iraq; right-wing terrorism in this country (Oklahoma City); the case of Shoko Asahara’s fanatical Japanese group, Aum Shinrikyo; and the specific threat of terrorists using
weapons of mass destruction. Develops a global perspective in raising comparative questions about terrorism.

Prerequisites: None.

The college has a certificate program in terrorism studies that D4CS students are free to pursue. This would require taking a few more credits than required for your M.S. in Digital Forensics and Cybersecurity. If you are interested in attaining a certificate this course would be a good start. Information about applying to join the certificate program is available on the JJay website. It is taught by Professor Charles Strozier, the director of the program. There is an online version of this program. Seats may be hard to grab. Alert Professor Lovely that you wish to take this course in order to receive clearance to register for it.

CRJ 751 Crime Scene Investigation
Analyze 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. Prerequisites: None.

If you are interested in general criminal investigation procedures, this course would be a useful elective. Seats are hard to come by, however, because it is popular with CRJ students. To get one you have to register early or stalk Course Search to spot one that might open when someone changes their registration choices. The instructor is usually a former detective who moved to academia after retirement. Alert Professor Lovely that you wish to take this course in order to receive clearance to register for it.

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. Prerequisites: None.

This course is intended as a non-technical survey course about investigating cybercrime. It is taught by Professor Adam Zion, an ADA who for years has run a cybercrime shop. It focuses on the investigative rather than the technical side of dealing with cybercrimes and managing digital evidence. Alert Professor Lovely that you wish to take this course in order to receive clearance to register for it.

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 well will greatly enhance your career. While some D4CS students take this course to shore up their writing ability, one recent grad who took it as an elective thinks all students should take it. Alert Professor Lovely that you wish to take this course in order to receive clearance to register for it.

*The academic advice to moderate your course load is rooted in our experience from D4CS student outcomes over the past decade. It puts us at odds with CUNY’s definition of full-time graduate study which requires a 12 credit hour load (usually four courses). On this score, CUNY is an outlier as the conventional definition for full-time graduate study is nine credit hours (which oddly is the CUNY definition for international students). For most students this definition means little because there is no significant material advantage to being formally defined as a ‘full-time’ student at CUNY. The financial break for full-time resident tuition versus paying for 12 credits by the credit hour is only $35. Nor are there any differences in privileges if you are a full-time versus part-time student. The students for whom meeting the CUNY definition of full-time may be an issue are veterans who want to draw full-time benefits for to do so they have to comply with CUNY’s definition; however, veterans can collect three quarters of full-time benefits with a nine hour load and actually extend the length of time they are eligible to receive benefits by not registering full-time.

{Last revised April 22, 2015}