

# DIGITAL FORENSICS (DFOR)

## 500 Level Courses

**DFOR 500:** *Introduction to Forensic Technology and Analysis*. 3 credits. Presents an overview of technologies related to the digital forensics process. It will introduce software, analysis, operating systems, networking, and other aspects required as the base for forensic examiners. Not intended to be taken for credit by students in the MS CFRS/DFCA program. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

### Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the following colleges:

- College of Science
- Engineering Computing
- Schar School of Policy and Gov
- School of Business

**Schedule Type:** Lecture

### Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 510:** *Digital Forensics Analysis*. 3 credits.

Explains digital forensics crime scene procedures, beginning with initial walk-through and evaluation; identification and collection of potential evidence; preparation of intrusion investigation; aspects of working with investigators and attorneys; reverse engineering with file identification and profiling; application of critical thinking in determination of significance of artifacts; and analysis and reporting of evidence. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

### Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

### Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 590:** *Special Topics in Digital Forensics*. 3 credits.

Presents selected topics from recent developments and applications in various digital forensics disciplines. Helps the professional digital forensics community keep abreast of current developments, and provides an applications-oriented introduction to emerging areas of digital forensics. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Topic Varies

### Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

### Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

## 600 Level Courses

**DFOR 637:** *Cloud Forensics*. 3 credits.

Introduces students to various cloud platforms and their features and prepares students to acquire memory, disk and other cloud resources from cloud providers. Students will perform forensics on gathered artifacts. The course will take students from understanding what resources are available in a cloud provider to what artifacts exist and how to capture and analyze them. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 or permission from instructor

### Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 660:** *Network Forensics*. 3 credits.

Deals with the collection, preservation, and analysis of network-generated digital evidence such that the evidence can be successfully presented in a court of law (both civil and criminal). The relevant federal laws will be

examined as well as private sector applications. The capture/intercept of digital evidence, the analysis of audit trails, the recording of running processes, and the reporting of such information will be examined. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit. Equivalent to TCOM 660.

**Recommended Prerequisite:** TCOM 535 and a working knowledge of computer programming.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the following colleges:

- College of Science
- Engineering Computing
- Schar School of Policy and Gov
- School of Business

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 661: Digital Media Forensics.** 3 credits.

Covers the collection, preservation, and analysis of digital media such that the evidence can be successfully presented in a court of law (both civil and criminal). The relevant federal laws and private sector applications will be examined, as well as the seizure, preservation, and analysis of digital media. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit. Equivalent to TCOM 661.

**Recommended Prerequisite:** DFOR 510 and a working knowledge of computer operating systems (e.g. CYSE 211, IT 342, or equivalent).

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

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Enrollment limited to students in the following colleges:

- College of Science
- Engineering Computing
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- School of Business

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 663: Operations of Intrusion Detection for Forensics.** 3 credits.

Introduces students to network and computer intrusion detection and its relation to forensics. Addresses intrusion detection architecture, system types, packet analysis, and products. Presents advanced intrusion detection topics such as intrusion prevention and active response, decoy systems, alert correlation, data mining, and proactive forensics. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit. Equivalent to TCOM 663.

**Recommended Prerequisite:** TCOM 535 and a working knowledge of computer programming.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 664: Incident Response Forensics.** 3 credits.

Addresses incident detection, response, and those aspects of computer forensics pertinent to the investigation of trade secret theft, economic espionage, copyright infringement, piracy, and fraud. Procedures for gathering, preserving, and analyzing forensic evidence are discussed in detail and are applied to both computer and network incident response forensics. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit. Equivalent to TCOM 664.

**Recommended Prerequisite:** TCOM 535.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 670: *Fraud Analytics*. 3 credits.**

Looks at financial information from a forensic perspective. Financial statement analysis, detection techniques, computer aided investigative processes, fraud detection, money laundering, interviewing, and other topics are covered. The class culminates in a final project where the student will present their findings to the class. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** Admission into MS DFOR program or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the following colleges:

- College of Science
- Engineering Computing
- Schar School of Policy and Gov
- School of Business

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 671: *Digital Forensics Ethics & Law*. 3 credits.**

Presents legal and ethics topics in the context of digital forensics. Includes legal principles, types of crimes, witness testimony, and forensics report writing. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** Admission into MS DFOR program or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 672: *Mobile Device Forensics*. 3 credits.**

Reviews forensic evidence contained within mobile devices, including address books, call logs, text messages, video files, audio files, and Internet history. Discusses procedures and technologies associated with mobile devices and how such procedures differ from traditional digital forensics. Analyzes collected data and correlates information with data from carriers. Hands-on exercises included. Notes: Course will consist

of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 673: *Registry Forensics - Windows*. 3 credits.**

Presents the concepts, tools, and techniques used for forensic collection, identification, and analysis of the Windows registry; review the structure and layout of the Windows registry and be introduced to the types of artifacts that can be found within; evaluate and interpret data from the Windows registry with emphasis on hand-on exercises. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 674: *Mac Forensics*. 3 credits.**

Presents the basic tools and techniques used to conduct a Mac and iOS forensic analysis. Application of industry best practices to both the collection and subsequent analysis of Mac iOS systems with an emphasis on hands-on exercises using currently available open-source and commercial tools. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 675: *Linux Forensics*.** 3 credits.

Presents the concepts, tools, and techniques used for forensic collection and analysis of Linux based operating systems and filesystems. Introduces, demonstrates, and discusses current research in the use of the Linux operating system and open source forensic tools with emphasis on developing custom functionality from multiple components. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 698: *Independent Reading and Research*.** 1-3 credits.

Studies selected area in computer forensics under the supervision of a faculty member. A written report is required. Notes: No more than a total of six credits may be taken from a combination of DFOR 698 and DFOR 798 for credit within the DFOR program. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Topic Varies

**Recommended Prerequisite:** At least two core courses in the DFOR program and permission of instructor

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, Non-Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Research

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

## 700 Level Courses

**DFOR 710: *Memory Forensics*.** 3 credits.

Introduces students to memory forensics, specifically the acquisition, investigation, and analysis of artifacts that reside in random access memory (RAM). Memory forensics provides an evidentiary wellspring of unique digital artifacts with regards to computer forensics and digital investigations (e.g. intrusion and malware incidents). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 660

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non-Degree.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 720: *Digital Audio Video Forensics*.** 3 credits.

Presents an overview of digital multimedia (audio, images, video) forensic analysis to include methods, legal framework, software, hardware, and other aspects required for forensic/investigative examination. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 661

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non-Degree.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 730: *Forensic Deep Packet Inspection*.** 3 credits.

Presents tools, techniques, and methodologies used to conduct deep packet forensic analysis. Application of industry best practices to both the collection and subsequent analysis of network packets with an emphasis on hands-on exercises using various digital analytical tools. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/>)

electrical-computer/small-satellite-engineering-graduate-certificate/). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 660

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 740: *Advanced Offensive & Defensive Strategies*.** 3 credits.

Teaches attack methodology from recon to initial access, to full domain compromise and covers: defensive strategies which can be employed to slow down or stop attackers and potentially strike back; tradecraft employed by both red and blue teams; the legal aspects of the best ways to set up deceptive defense technologies; and what defenders are - and are not - allowed to do to intruders in their network. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and (DFOR 660 or DFOR 661)

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy or Graduate.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 761: *Malware Reverse Engineering*.** 3 credits.

Reviews disassembled code for potentially malicious binary, or piece of malware, in order to gain a better understanding of how a binary functions when executed. Analyzes behavioral aspects as they are executed in a controlled environment. Environment changes (file, system, network, process, etc.), network communications, communications with remote devices, and so on, are closely observed for actionable information. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 660

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 767: *Penetration Testing in Digital Forensics*.** 3 credits.

Presents the concepts, tools, and techniques used for penetration testing, vulnerability exploitation, assessment, reporting, and forensics; teaches multiple attack vectors as well as the defensive measures protecting against such attacks; focuses heavily on post attack forensics allowing for a complete picture of the attack process. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 660 and DFOR 663

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 768: *Digital Warfare*.** 3 credits.

Presents concepts of forensic attribution, context, and motivations behind computer attacks including those tied to cyber warfare and cyber terrorism activities. Tactics, techniques, and procedures of current cyber-attacks will be addressed. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 660

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 769: *Anti-Forensics*.** 3 credits.

Presents concepts of anti-forensics and obfuscation used in order to inhibit, frustrate, and mislead digital forensics examiners. Techniques,

attempts, and actions used to negatively impact the existence, volume, or amount of evidence from digital repositories will be examined with goal of understanding and detecting anti-forensics. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 660

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 771: Digital Forensic Profiling.** 3 credits.

Presents the application of criminal profiling to digital forensic evidence and cybercrime. Covers typologies of cyber criminals and reviews how the results of digital forensics can be used to profile individuals to better facilitate investigative interviews and prosecutions. Applies digital profiling to the identification of criminal behavior for insider threats and fraud. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 661

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 772: Forensic Artifact Extraction.** 3 credits.

Presents tools and techniques for the extraction and processing of digital artifacts from various media and formats. Foundations are presented and examples are developed for Windows, Linux, Mac, and media filesystems, files, RAM, Windows Registry, solid state devices, network traffic, and mobile devices. Emphasis on applications and hands-on exercises. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture). Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 510 and DFOR 661

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 773: Mobile Application Forensics and Analysis.** 3 credits.

Presents mobile applications forensics and analysis. Analyze mobile applications on both the android and iPhone platforms in a lab environment in order to understand the weaknesses, pitfalls, and forensic challenges that exist or potentially exist when developing mobile client side software as well as identify forensic artifacts left behind from applications. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 762

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Laboratory, Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 775: Kernel Forensics and Analysis.** 3 credits.

Introduces students to low level programming analysis and low level API's. Students will learn the basics of kernel level device drivers, how to load and unload software from the kernel, modification of kernel objects, interrupt and call hooking and memory hiding techniques. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 761

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 780: *Advanced Topics in Digital Forensics*. 3 credits.**

Teaches advanced topics from recent developments and applications in various areas of digital forensics. Enhances the professional engineering community's understanding of breakthrough developments in specific areas of digital forensics. Active participation of the students is encouraged in the form of writing and presenting papers in various research areas of the advanced topic. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May be repeated within the term for a maximum 6 credits.

**Specialized Designation:** Topic Varies

**Recommended Prerequisite:** Permission of Instructor

**Registration Restrictions:**

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lec/Sem #1, Lec/Sem #2, Lec/Sem #3, Lec/Sem #4, Lec/Sem #5, Lec/Sem #6, Lec/Sem #7, Lec/Sem #8, Lec/Sem #9, Lecture, Sem/Lec #10, Sem/Lec #11, Sem/Lec #12, Sem/Lec #13, Sem/Lec #14, Sem/Lec #15, Sem/Lec #16, Sem/Lec #17, Sem/Lec #18

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 790: *Advanced Digital Forensics*. 3 credits.**

Capstone course for the MS in digital forensics program. Students will be exposed to case studies and be required to conduct digital forensic investigations of digital media, intercepted packet switched data, and multisource log information to successfully complete each case study. Notes: To be taken in the last year prior to the completion of degree requirement. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May not be repeated for credit.

**Recommended Prerequisite:** DFOR 660, 661, and (663 or 664), and a minimum of 18 credits in the MS Digital Forensics Program prior to registration.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Lecture

**Grading:**

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

**DFOR 798: *Research Project*. 1-3 credits.**

Conduct a research project to be chosen and completed under guidance of a graduate faculty member that results in an acceptable technical report. Notes: No more than a total of six credits may be taken from

a combination of DFOR 698 and DFOR 798 for credit within the DFOR program. Offered by Electrical & Comp. Engineering (<http://catalog.gmu.edu/colleges-schools/engineering-computing/engineering/electrical-computer/small-satellite-engineering-graduate-certificate/>). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Topic Varies

**Recommended Prerequisite:** At least two core courses and a minimum of 12 credits in the DFOR program; permission of instructor.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Engineering Computing or Schar School of Policy and Gov colleges.

**Schedule Type:** Thesis

**Grading:**

This course is graded on the Satisfactory/No Credit scale. (<http://catalog.gmu.edu/policies/academic/grading/>)