Course Change Request

New Course Proposal

Date Submitted: 10/10/23 6:54 pm

Viewing: FRSC 660 : FARO Forensic 3D Documentation

Last edit: 10/10/23 6:54 pm

Changes proposed by: kcarisi

Programs referencing this course

SC-MS-FRSC: Forensic Science, MS

In Workflow

1. **FRSC Representative**
2. **SC Curriculum Committee**
3. SC Assistant Dean
4. Assoc Provost-Graduate
5. Registrar-Courses
6. Banner

Approval Path

1. 09/28/23 8:14 pm Kimberly Rule (kcarisi): Approved for FRSC Representative
2. 10/06/23 3:18 pm Jennifer Bazaz Gettys (jbazaz): Rollback to Initiator
3. 10/10/23 6:54 pm Kimberly Rule (kcarisi): Approved for FRSC Representative

Are you completing this form on someone else's behalf?

No

Effective Term: Spring 2024

Subject Code: FRSC - Forensic Science

Course Number: 660

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: FARO Forensic 3D Documentation

Banner Title: FARO Forensic 3D Documentation

Will section titles vary by semester? No

Credits: 3

Schedule Type: Lecture

Hours of Lecture or Seminar per week: 3

Repeatable: May only be taken once for credit (NR)
GRADUATE ONLY

Default Grade Mode: Graduate Regular

Recommended Prerequisite(s):
Completion of 18 graduate credits.

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):
Minimum grade of a B+ in FRSC 510

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?

Registration Restrictions (Updates only):
Include FRSC MS students (SC-MS-FRSC) and
Include FORS CERG students only (SC-CERG-FORS)

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog Description:

This course will provide in-depth knowledge and operational training of FARO laser scanners in conjunction with the use of the FARO scan software. Laser scanning is a high precision method of rapidly documenting crime scenes and items of forensic nature by capturing millions of data points to create a 3D point cloud. Students will create accurate 3D scans in indoor and outdoor scenarios, import them into the software, extrapolate critical measurements, and prepare scan projects for mock courtroom presentation. This course will give students the opportunity to become Certified FARO Focus Operators upon successful completion of the FARO Focus Certification Examination.

Justification:

What: This is a newly proposed Graduate-level FRSC course designed as an elective for all four concentrations of the MS in Forensic Science degree.

Why: The Forensic Science Program was approved and purchased four sets of FARO Focus 3D Laser Scanners with the goal to introduce this technology to undergraduate and graduate Forensic Science students. FARO is a leader in the laser scanning industry and is applicable to various fields to include Forensic Science. The Forensic Science Program also initiated a relationship and collaborative efforts with FARO to establish Mason's FARO Forensic Lab, which is the first of its kind facility in an academic institution in the world. The FARO scanners and software have been introduced in both undergraduate and graduate crime scene courses.

Subsequently, Profs. Rule and Rancourt became Authorized FARO Trainers in order to offer the first dedicated academic FARO Forensic 3D Documentation course in the United States which gives graduate students the opportunity to become Certified FARO Laser Scanner Operators. This course was successfully designed and first offered in spring 2023 with glowing student feedback. This course provides hands-on training with cutting-edge technology which will help propel our students into the workforce making them marketable to numerous law enforcement, government, and other public safety agencies.

The course is specifically designed to meet all FARO Certification standards and is delivered in a modality to promote student success. Students are introduced to the information in a lecture style format which is interspersed with various activities to reinforce and practice the concepts in real time. As students' progress in the course, more comprehensive activities are required putting together multiple concepts to assist in mastering these skills. Lastly, this course culminates in a full real-life crime scene scenario utilizing the Crime Scene House/Lab in which students apply all concepts to produce a final 3D representation of their crime scene.

Does this course cover material which crosses into another department? No

Learning Outcomes:

Students will plan proper scanner placement using a site sketch.
Students will select proper parameters to conduct scanning of various scenes.
Students will generate a 3D point cloud of a scene utilizing appropriate software tools and filters.
Students will create a deliverable based on their 3D scan project.
Students will present their scanning procedures in a mock court scenario.

Will this course be scheduled as a cross-level cross listed section? No

Attach Syllabus
FRSC 660- FARO Forensic 3D Documentation Syllabus-Proposal.pdf

Additional Attachments

Staffing:
Prof. Kimberly Rule
Prof. Emily Rancourt

Relationship to Existing Programs:
This course will be proposed as an elective course to all four concentrations of the MS in Forensic Science degree.

Relationship to Existing Courses:
There are no relationships to existing courses.

Specialized Course Categories:

Additional Comments:

Reviewer Comments
Jennifer Bazaz Gettys (jbazaz) (10/06/23 3:18 pm): Rollback: Per your request for edits- thanks!

Key: 18304

GEORGE MASON UNIVERSITY

FARO FORENSIC 3D DOCUMENTATION – FRSC 660

Instructor: Professor Kimberly Rule, Associate Professor of Forensic Science

Email: kcarisi@gmu.edu

Office: Exploratory Hall 3408

Phone: 703-993-5338

Text: None, reading materials will be provided on Blackboard

Pre-Requisite: Minimum grade of a B+ in FRSC 510 is required. Recommended, completion of 18 graduate credits.

Course Description: This course will provide in-depth knowledge and operational training of FARO laser scanners in conjunction with the use of FARO scan software. Laser scanning is a high precision method of rapidly documenting crime scenes and items of forensic nature by capturing millions of data points to create a 3D point cloud. Students will create accurate 3D scans in indoor and outdoor scenarios, import them into the software, extrapolate critical measurements, and prepare scan projects for mock courtroom presentation. This course will give students the opportunity to become Certified FARO Focus Operators upon successful completion of the FARO Focus Certification Examination.

Course Format: This course will be taught in-person each class and will contain hands-on exercises throughout the term.

Late Policy: Due to the hands-on nature of this course, a strict on-time policy is required. Students are expected to arrive on time and have completed all assigned readings for each class so that they are properly prepared to conduct the hands-on exercises. Failure to arrive on time and/or be unprepared can result in the mishandling of the hardware and software; students may not be allowed to participate in the hands-on exercises for that class. Tardiness will result in a deduction of points for Attendance. If you anticipate that you will have time conflicts and will not be able to arrive on time please drop the course immediately.

Course Material Restrictions: All course materials posted to Blackboard including PowerPoint Presentations, recordings, photographs, and videos, etc. are private to this class; all materials shall not be shared with anyone not enrolled in this class. **Unauthorized sharing of any materials will be reported to the Office of Academic Integrity**.

Required Equipment: Activities and assignments in this course will regularly use the Blackboard learning system, available at https://mymason.gmu.edu. Students are required to have regular, reliable access to a computer with an updated operating system and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc.), with sufficient download speed.

Student Responsibilities:

The lectures will cover the same topics as found in the assigned readings, it is **CRITICAL** that students will read the assigned readings prior to class to facilitate discussion and participation in the student activities. Students who do not come prepared to class will **NOT** be able to participate in student activities. Students can expect unannounced quizzes throughout the semester; no make-up quizzes will be given.

Quizzes are graded as part of attendance and participation. If you are absent on the evening of a quiz, you will only be deducted points for attendance, the quiz will not be counted against you, although it will also not be averaged in to help your overall score either. Students who can provide medical/documentation for an absence will not be deducted points.

Students are responsible for acquiring all lectures and handouts on Blackboard prior to class each week; the instructor will not bring copies of these documents to class. If you miss a class it is the student's responsibility to ask a peer for missed notes; you may only contact your instructor if you have questions regarding the missed material. All items will be available on Blackboard no later than 24 hours before class time each week. If you are working ahead, it is your responsibility to check the "Weekly Content & Assignments" folders in Blackboard within the 24-hour timeframe incase additional materials have been posted. Late assignments will be deducted 5 points each day (Monday - Sunday).

Attendance and participation are required; please contact the instructor immediately if you are unable to come to class. Students will be working in pairs for the majority of the term. Students are responsible for the handling and care of all hardware and software; any worn or broken equipment shall be reported to the instructor immediately. Students who can provide medical/other documentation for an absence will not be deducted points.

The course schedule will largely depend on the overall progress of the class; therefore students should expect modifications to the course schedule throughout the term. Please make sure you are listening for class announcements and referring to posted Blackboard announcements for any schedule modifications.

Discussion Board "Ask the Instructor": A discussion board "Ask the Instructor" is available on Blackboard for students to ask questions about course requirements and lecture material. Instructor will respond to questions in a timely manner. It is recommended that you "Subscribe" to this discussion board to be notified of other students' questions and answers; this discussion board is not graded.

PRESENTATION (Mock Courtroom Testimony): A set of questions will be asked to each student individually pertaining to FARO to mimic courtroom testimony. Students are expected to provide complete answers. Students can bring notes for quick reference. Students will present a deliverable (fly through) which will be evaluated on quality, speed and transition/smoothness of video depicting clear views of all critical items and overview of scene. Students will arrive at their designated time slot and wait in the hallway. Instructor will retrieve student when ready. Students will be evaluated based on accuracy and comprehensiveness of answers, speaking skills to include, eye contact/not reading from notes, professional responses, tone, pace, verbal clutter, etc.

Grading: Class participation, attendance, in-class assignments, quizzes, a midterm exam, project presentation and a certification/final exam (practical portion and computer portion) will determine your grade in the course. Other assignments, home works, etc. may be added; instructor will give advanced notice.

Specifically, your final grade will be calculated based upon the following formula:

- In-Class Assignments / Attendance / Participation / Quizzes / Other - 10%
- Project Presentation- 20 %
- Midterm Exam- 30 %
- Certification Exam: Practical Portion – 20%
- Final Exam- Certification Exam: Computer Portion- 20 %

Grading Scale:

100	A+	89-87	B+	79-70	C
99-95	A	86-83	B	69 and below	F
94-90	A-	82-80	B-		

UNIVERSITY RESOURCES

GMU Honor Code: Standards of academic integrity as set forth by the University are strictly observed and rigorously enforced in this class. The complete Honor Code is as follows: *To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set forth this honor code:* **Student members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.**

GMU Code of Student Conduct: The University Code of Student Conduct is George Mason University's statement of community values. The Code fosters a safe, secure, and fair learning environment by establishing expectations for behavior, identifying a process for resolving incidents outside the stated expectations and the results of such processes**. No student or student organization shall commit an Act of Misconduct in any location**. Students and student organizations found responsible under this CSC of committing Acts of Misconduct are subject to sanctions by the University. The Office of Student Conduct has authority over all non-academic disciplinary matters.
Please refer to https://studentconduct.gmu.edu/

Diversity and Inclusion
Students from all diverse backgrounds and perspectives are viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture. Your suggestions are encouraged and appreciated.

Sexual Harassment, Sexual Misconduct, and Interpersonal Violence
Notice of mandatory reporting of sexual or interpersonal misconduct: As a faculty member, I am designated as a "Non-Confidential Employee," and must report all disclosures of sexual assault, sexual harassment, interpersonal violence, stalking, sexual exploitation, complicity, and retaliation to Mason's Title IX Coordinator per University Policy 1202. If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-380-1434 or Counseling and Psychological Services (CAPS) at 703-993-2380. You may also seek assistance or support measures from Mason's Title IX Coordinator by calling 703-993-8730, or emailing titleix@gmu.edu.

GMU Email: http://masonlive.gmu.edu
Each student is responsible for activating their GMU email account and checking their account on a regular basis for University and class announcements.

GMU Police Policy: 703-993-2810
If you are currently employed with a law enforcement agency as a sworn officer and would like to carry a firearm on campus and into class, you must contact GMU Police Department as a courtesy.

GMU Students with Disabilities: http://ods.gmu.edu
If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Resources at 703-993-2474. All academic accommodations must be arranged through that office.

Writing Center: http://writingcenter.gmu.edu
For general questions and comments please contact wcenter@gmu.edu or call:
703-993-1200 (JC, Room 227E, Fairfax Campus)
703-993-1200 (Van Metre Hall 212, Arlington Campus)
All appointments are made through the online scheduling system.

University Libraries:
Margaret Lam, Physical Sciences & STEM Data Librarian
Fenwick Library, Room 2207
703-993-2212
mlam3@gmu.edu
Forensic Science Infoguide: https://infoguides.gmu.edu/frsc
"Ask a Librarian": http://library.gmu.edu/ask
Library Website: http://library.gmu.edu/

Counseling and Psychology Services (CAPS): (703) 993-2380; https://caps.gmu.edu

Student Support and Advocacy Center (SSAC): (703) 993-3686; https://ssac.gmu.edu

University Policies:
The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.

University COVID Policies:
Refer to GMU's 'Safe Return to Campus' website for latest COVID 19 information:
https://www.gmu.edu/safe-return-campus

Note: Additional reading assignments, homework, quizzes, assignments may be added throughout the semester.

Note: The schedule is subject to change, please watch for announcements.

FARO FORENSIC 3D DOCUMENTATION- FRSC 660

Week	Date	Topic	Readings
1	Aug 24	Intro of Instructor / Class Syllabus and Schedule Using the Scanner: Scanner Hardware & The Scanner Interface	Module 1: lessons 1 -2
2	Aug 31	Preparing a Scan Project Site Sketch Project Planning: Scanning Considerations & Registration	Module 1: lesson 3 Module 2: lessons 1-2
3	Sept 7	Project Planning: Scanner Positions Targetless Registration: SCENE Interface **In-Class Assignment Due: Site Sketch**	Module 2: lesson 3 Module 3: lesson 1
4	Sept 14	Project Planning: Target Arrangements and Scanning Strategies Target Registration: Registration Settings	Module 2: lesson 4-5 Module 4: lesson 1
5	Sept 21	Manual Registration Visual Registration Targetless Registration: Registration Settings, Registration Results, Navigating the Project, and View Project	Modules 6: lesson 1 Module 7: lesson 1 Module 3: lesson 2-5
6	Sept 28	Filters & Tools: Filters, Clipping Boxes, Measuring, Annotations Project Point Cloud Mesh **Homework: Freestyle Certification Due**	Module 5: lessons 1-4 Module 14: lesson 1 Module 13: lesson 1
7	Oct 5	**Midterm Exam and Freestyle 2 Practice**	NA
8	Oct 12	Court Testimony Practice Day 1- Fly-Thru and SCENE2GO	Review previous reading assignments
9	Oct 19	**Certification Practical Portion**: Crime Scene House Scanning Project Scanning- must turn in site sketch ***Meet at Crime Scene House- 10808 Kelley Dr, Fairfax	Review previous reading assignments
10	Oct 26	Transfer and Register CSH Scans Practice Day 2	Review previous reading assignments
11	Nov 2	Practical SCENE Software Work 1	NA
12	Nov 9	Practical SCENE Software Work 2	NA
13	Nov 16	**No Class – Happy Thanksgiving!**	NA
14	Nov 23	Weather Adjustment Day if needed / Continue Software Work	NA
15	Nov 30	**Student Project Presentations- Mock Courtroom Testimony**	NA
16	Dec 7	**Final Exam- Certification Exam: Computer Portion**	NA