

Introduction to CSI



PennState
Eberly College
of Science

Forensic Science Program
329 Whitmore Laboratory
University Park, PA 16802

SYLLABUS—Fall 2021

It is the responsibility of each student to carefully review this document. Its content is subject to revision with notice.

COURSE INFO

INSTRUCTOR
MIKE KUSLUSKI

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COURSE ASSISTANTS

Lead

JESSICA HOVINGH

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CANVAS CMS

psu.instructure.com

CANVAS will be used extensively for communication and posting course material. Students are advised to check CANVAS frequently for updates.



Course Description

This course offers an exploration of the science, management, and investigative techniques for the field of crime scene investigation. Students will develop the intellectual skills needed to be able to plan for and organize a crime scene investigation. Each student will understand the nature and value of each kind of physical evidence and how to recognize, collect and preserve it. They will research all the topics in this course and provide their own evidence of competency in each in the form of a professional portfolio. A student who demonstrates competency in the subject matter of this course:

- Employs the philosophies and practice of science
- Generates hypotheses of crimes based on evidence
- Can use deduction in a scientific manner
- Is tenacious when recovering and developing evidence
- Prescribes recovery and development cascades for: fingerprints; trace evidence; impression evidence; biological evidence
- Prescribes and amends crime scene search plans
- Sketches crime scenes to scale
- Makes competent use of limited time, human and other resources
- Calculates: measurements for crime scene sketches; bullet trajectories; angle of impact; and area of impact
- Provides complete, admissible reconstruction reports
- Understands and accounts for chain of custody

Required References (provided on Canvas)

Chisum WJ, Turvey BE. Crime reconstruction. 2nd ed. Amsterdam (NL): Academic Press; 2011.

National Forensic Science Technology Center (NFSTC). Crime scene investigation: a guide for law enforcement. Largo (FL): National Forensic Science Technology Center, September; 2013.

Turvey BE, Crowder S. Forensic investigations: an introduction. Amsterdam (NL): Academic Press; 2017.

White PC, editor. Crime scene to court: the essentials of forensic science. 2nd ed. Cambridge (UK): The Royal Society of Chemistry; 2004.

Supplemental References

Shaler RC. Crime scene forensics: a scientific method approach. Boca Raton: Taylor & Francis Group, LLC; 2012.

Additional Reading

Additional reading assignments are required. At the discretion of the instructor, readings not listed in the bibliography may also be assigned.

General Course Information

Required Materials:

- Access/knowledge of CANVAS, Internet, and World Wide Web.
- Camera (mobile phone, point-and-shoot, or DSLR), computer or tablet, printer, and the ability to read, produce, and transmit documents in PDF or other specified formats. Access to a scanner may be helpful.

Course Syllabus Modifications:

- Changes to this syllabus may be made as deemed appropriate by the instructor. Students will be notified of changes in writing or by e-mail.
- Changes to the syllabus, class schedule, announcements, etc., will be communicated via CANVAS/e-mail. Students are REQUIRED to check their Penn State and CANVAS e-mail daily.

Information Literacy:

Students will recognize when research is required and will have the ability to access, analyze, integrate, and evaluate information from a variety of sources. These sources include, but are not limited to, Penn State library databases, published and other written materials, and computer sources (Internet, World Wide Web, databases, etc.).

Expected Course Behavior:

- Students are expected to be actively involved in their acquisition of knowledge. Every student is responsible for all assigned reading, material presented in lecture, and computer-assisted and delivered instructional material.
- All students are expected to behave ethically and with honor and integrity (refer to *Academic Integrity Policy*).

Attendance Considerations (refer to Attendance Policy on page 4):

- The instructor reserves the right to require written documentation of any event(s) leading to missed exercises, quizzes, and examinations (funerals, hospitalization, physician's office visit, etc.).

Assignment Submission (refer to Assignment Submission on page 4):

- The instructor reserves the right to require written documentation of any event(s) leading to missed exercises, quizzes, and examinations (funerals, hospitalization, physician's office visit, etc.).

Examination Requirements:

- Cell phones must be silenced and not on the person during quizzes or examinations.
- No electronic/wearable devices are allowed during quizzes or examinations.
- If a student misses a quiz, examination, or assignment:
 - Students must e-mail the course instructor in advance if an anticipated or expected absence is forthcoming.
 - Students must e-mail the course instructor within 24 hours of the absence with a plan for completing the missed course assessment or assignment. If emergent circumstances prevent e-mail correspondence within 24 hours, the instructor must be notified as soon as possible.
 - Documentation of the event must be provided to the course instructor and a plan for completing the missed assessment or assignment must be implemented by the student.
 - If a quiz or examination is missed, it must be completed before the next weekly session. If emergent circumstances prevent a make-up before the next weekly session, the instructor must be notified as soon as possible.
 - It is the instructor's prerogative to administer an alternative format examination for any make-up examination.
- Additional requirements/instructions may be given at the start of an examination or assignment.

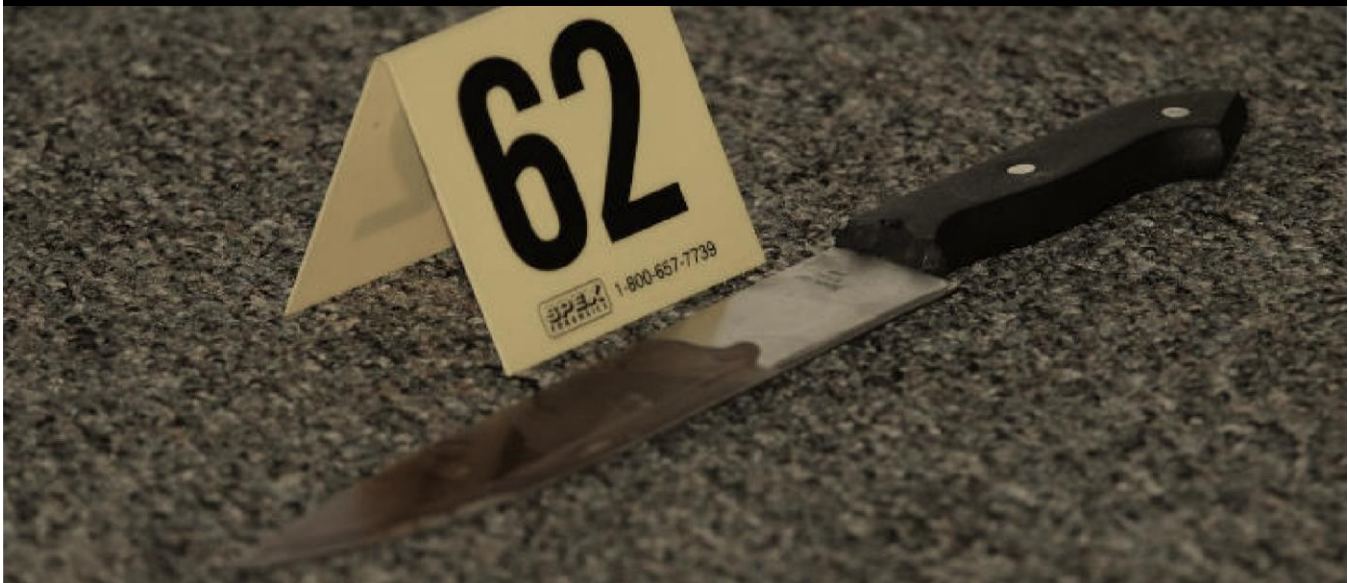
Other Assessment Requirements:

- Students are responsible for keeping a back-up copy of all submitted work.
- All assessments are due on the date and time specified unless otherwise determined by the instructor (refer to *Late Submission Policy*).
- Additional requirements/instructions may be given at the time an assessment is assigned.

Duplication, Distribution, and Copyright of Course Materials:

- Students are not permitted to record lectures or any parts of lectures (photography, videography, or any other type of image capture or live recording).
- Students are not permitted to distribute or share any information from this course with others who are not enrolled in the course.
- Students are prohibited from posting any course information electronically without the permission of the instructor; this includes online note-taking/note-sharing services (refer to Penn State Administrative Policy AD-40).
- Violations will result in disciplinary sanctions.

CRIME SCENE DO NOT CROSS CRIME SCENE
Penn State CSI



Course Calendar

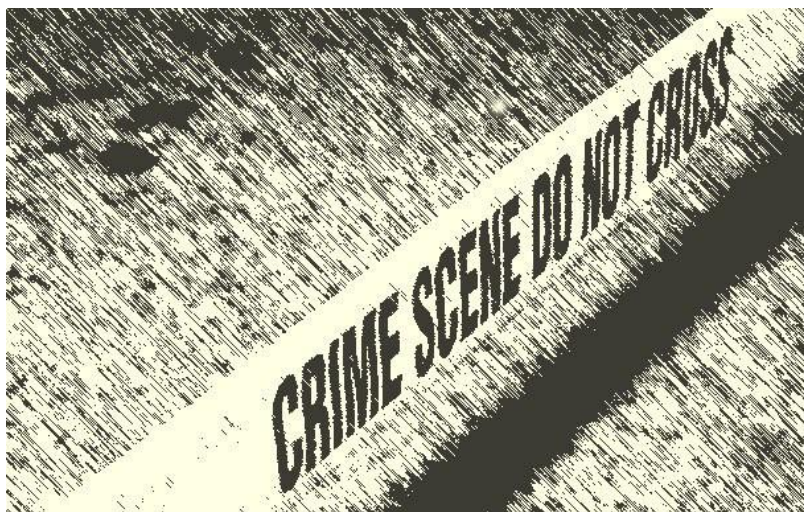
Lectures, Reading Assignments, and Examinations

Module	Week	Lecture Topics	Assigned Reading*	Assessment
01	AUG 23 – AUG 29	Course introduction; CSI; forensics; ethics	Syllabus; introduction (Module 0); Turvey & Crowder (preface, ch. 5)	EX01 (photo description) QUIZ 01
02	AUG 30 – SEP 5	CSI management; evidence collection	NFSTC (pp. 1-10, 38-42, and 145-149)	EX02 (item description) QUIZ 02
03	SEP 06 – SEP 12	Documentation: notes, sketches, scene entry logs, other forms	NFSTC (pp. 10-27)	EX03 (sketch) QUIZ 03
04	SEP 13 – SEP 19	Photography I (general photography)	Supplemental websites (to be provided)	EX04 (online photo exercise) QUIZ 04
05	SEP 20 – SEP 26	Photography II (scene and people photography)	NFSTC (pp. 27-38)	EX05 (coin exercise) QUIZ 05
06	SEP 27 – OCT 03	Fingerprints	NFSTC (pp. 134-142)	MIDTERM EXAM I (modules 1-5)
07	OCT 04 – OCT 10	Pattern evidence	NFSTC (pp. 71-73, 98-111, and 142-144)	EX06 (fingerprint exercise) QUIZ 06
08	OCT 11 – OCT 17	Microscopic evidence; biological evidence; sexual assault	NFSTC (pp. 43-56 and 73-97)	EX07 (Locard fiber exercise) QUIZ 07
09	OCT 18 – OCT 24	Fires; explosions; mass fatality events	NFSTC (pp. 43-56); White (ch. 9)	EX08 (online fire exercise) QUIZ 08
10	OCT 25 – OCT 31	Digital evidence; questioned documents	NFSTC (pp. 57-60 and 113-134)	EX09 (QD exercise) QUIZ 09
11	NOV 01 – NOV 07	Firearm evidence I	White (ch. 10)	MIDTERM EXAM II (modules 6-10)
12	NOV 08 – NOV 14	Firearm evidence II	NFSTC (pp. 61-71 and 97-98)	EX10 (to be determined) QUIZ 10
13	NOV 15 – NOV 28	Autopsy; entomology; drugs; animal (veterinary) cases	Turvey & Crowder (ch. 9)	EX11 (evidence packaging) QUIZ 11
14	NOV 29 – DEC 5	Analysis of blood traces	Chisum & Turvey (ch. 12)	EX12 (mock scene exercise) QUIZ 12
15	DEC 06 – DEC 10	Aspects of shooting incident investigations	Chisum & Turvey (ch. 13)	EX12 (mock scene exercise) QUIZ 13
—	DEC 13 – 17 (DEC 17 23:59 hr)	FINAL EXAMINATION (comprehensive; modules 01-15)		

* **Reading Assignments must be completed by the start of the following module; i.e., module 01 readings must be completed by Monday of module 02.**

Assessment of Knowledge and Skills

ASSESSMENT METHOD	ASSIGNMENT WEIGHT	FINAL WEIGHT
TOTAL COURSE SCORE		100.00%
Exercises including pre-exercise check-in (EX01 – EX11)	3.25%	35.75%
Mock scene exercise (EX12)	6.75%	6.75%
Quizzes (QUIZ 01 – QUIZ 13)	1.50%	19.50%
Midterm Examinations (×2)	12.00%	24.00%
Final Examination	14.00%	14.00%



Additional Grading Considerations

- **Assignment Submission**
 - **FINAL EXAMINATION CANNOT BE SUBMITTED LATE!**
 - **MOCK SCENE EXERCISE (EX12) CANNOT BE SUBMITTED LATE!**
 - Late submissions incur 20% deduction per day; after five days, no credit will be assigned (refer to examples below and to CANVAS for implementation).
 - 00:01-24:00 hr late = 20% deduction
 - 24:01-48:00 hr late = 40% deduction
 - Extensions may be granted for exigent circumstances WITH ADVANCE NOTICE (*documentation may be required*).
 - Extensions will be granted for emergent circumstances (*documentation required*).
- **Attendance Policy:** Students are expected to listen to every lecture (refer to University Faculty Senate [Policy 42-27: Class Attendance](#) for further information).

Grading Scale

Letter Grade	Score (%)
A	$93 \leq x \leq 100$
A–	$90 \leq x < 93$
B+	$87 \leq x < 90$
B	$83 \leq x < 87$
B–	$80 \leq x < 83$
C+	$77 \leq x < 80$
C	$70 \leq x < 77$
D	$60 \leq x < 70$
F	$x < 60$

ACADEMIC INTEGRITY

All Penn State policies regarding ethics and honorable behavior apply to this course (refer to links below for policy statements). Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. All University policies regarding academic integrity apply to this course. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. For any material or ideas obtained from other sources, such as the text or things you see on the web, in the library, etc., a source reference must be given. Direct quotes from any source must be identified as such. All examination answers must be your own, and you must not provide any assistance to other students during examinations. Any instances of academic dishonesty WILL be pursued under the University and [Eberly College of Science](#) regulations concerning academic integrity.

Discussion of course concepts and cooperative study are encouraged; however, collaboration, discussion, assistance, cheating, plagiarism, etc., are NOT permitted during examinations or other assignments as specified by the instructor. Integrity and ethics are considered exceptionally important by the instructor.

CODE OF MUTUAL RESPECT

The [Code of Mutual Respect and Cooperation](#) was developed to embody the values that we hope our faculty, staff, and students possess, consistent with the aspirational goals expressed in the Penn State Principles. The University is strongly committed to freedom of expression, and consequently, the Code does not constitute University or College policy, and is not intended to interfere in any way with an individual's academic or personal freedoms. We hope, however, that individuals will voluntarily endorse the 12 principles set forth in the Code, thereby helping us make the Eberly College of Science a place where every individual feels respected and valued, as well as challenged and rewarded.

DISABILITY ACCOMMODATIONS

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) Web site provides contact information for every Penn State campus: <http://equity.psu.edu/sdr/disability-coordinator>. For further information, please visit Student Disability Resources Web site: <http://equity.psu.edu/sdr>.

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <http://equity.psu.edu/sdr/guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. You must follow this process for every semester that you request accommodations.

COUNSELING AND PSYCHOLOGICAL SERVICES

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park:	+1-814-863-0395	http://studentaffairs.psu.edu/counseling/
Penn State Crisis Line (24 hours/7 days/week):	+1-877-229-6400	
Crisis Text Line (24 hours/7 days/week):	Text LIONS to 741741	

EDUCATIONAL EQUITY AND BIAS REPORTING

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the Report Bias webpage (<http://equity.psu.edu/reportbias/>).

MANDATED REPORTING (TITLE IX)

Penn State's policies require faculty to share information about incidents of sex-based discrimination and harassment (discrimination, harassment, sexual harassment, sexual misconduct, dating violence, domestic violence, stalking, and retaliation) with Penn State's Title IX coordinator or deputy coordinators, regardless of whether the incidents are stated in person or shared by students as part of their coursework. For more information regarding the University's policies and procedures for responding to reports of sexual or gender-based harassment or misconduct, please visit <http://titleix.psu.edu>. Additionally, faculty members are required to report on any reasonable suspicion of child abuse in accordance with the Pennsylvania Child Protective Services Law.



Course Objectives

OBJECTIVES	STRATEGIES AND ASSESSMENT
<i>Comprehension of the techniques used to preserve the crime scene record (notes, sketches, and digital SLR photography).</i>	<ul style="list-style-type: none"> • Lectures illustrating handwritten recording techniques and appropriate content • Lectures and reading assignments covering fundamentals of photography and application to scene and evidence documentation • Examination questions to assess fundamental knowledge
<i>Comprehension of the techniques used to recognize, enhance, document, collect, handle, and package physical evidence. Comprehension of importance of chain of custody and evidence integrity.</i>	<ul style="list-style-type: none"> • Lectures outlining various search, recognition, enhancement, collection, handling, and packaging techniques • Lectures illustrating science behind enhancement techniques • Lectures discussing importance of chain of custody and evidence integrity • Examination questions to assess fundamental knowledge
<i>Comprehension of common field tests for the presumptive identification and enhancement of different types of physical evidence.</i>	<ul style="list-style-type: none"> • Lectures outlining common field tests for the presumptive identification and/or enhancement of biological evidence, fibers, gunshot residue, and impression evidence • Lectures illustrating science behind field tests and enhancement techniques • Examination questions to assess fundamental knowledge
<i>Comprehension of incident/crime reconstruction including the analysis of blood traces and projectile trajectory analysis.</i>	<ul style="list-style-type: none"> • Lectures describing fundamentals of a scientific reconstruction • Lectures illustrating science behind techniques including the analysis of blood traces and projectile trajectory analysis • Examination questions to assess fundamental knowledge
<i>Comprehension of proper preparation and maintenance of case folders.</i>	<ul style="list-style-type: none"> • Lectures describing fundamentals of documentation and use of forms and logs • Examination questions to assess fundamental knowledge
<i>Comprehension of techniques to communicate results including verbal and written communication.</i>	<ul style="list-style-type: none"> • Lectures describing communication of results; verbal and written
<i>Comprehension of scene management techniques including allocation of personnel, resources, and time.</i>	<ul style="list-style-type: none"> • Lectures illustrating aspects of scene management including allocation of personnel, resources, and available time (if time constraints)
<i>Comprehension of importance of science and scientific, objective, critical thought processes in scene investigations.</i>	<ul style="list-style-type: none"> • Lectures discussing science, scientific integrity, critical thinking and their importance during the investigation of a scene • Examination questions designed to assess critical thinking and problem-solving abilities
<i>Comprehension of the role and impact of the criminalist in incident scene investigations.</i>	<ul style="list-style-type: none"> • Lectures discussing role (responsibilities and duties) and importance of the criminalist in a scene investigation • Examination questions to assess fundamental knowledge
<i>Introduction to codes of professional conduct and ethics for forensic science professional organizations; comprehension of necessity of ethics in forensic science and potential ethical problems in forensic science including issues of professional practice, technical competence, and bias.</i>	<ul style="list-style-type: none"> • Lecture discussing integrity, ethics, and bias in forensic science

Exercise Dates, Descriptions, and Required Materials

EX #	Available (MONDAY)	Check-In Due Date (FRIDAY)	Exercise Due Date (SUNDAY)	Hours Required to Complete (CONSERVATIVE APPROXIMATION)
01	AUG 23 @ 0001 hr	AUG 27 @ 2359 hr	AUG 29 @ 2359 hr	≈ 1-3
DESCRIPTION: Students are provided a photograph for examination. They must describe the photograph and draw conclusions based upon their observations. No assumptions should be made; only observations should be recorded. Proper documentation conventions must be followed. This exercise is typewritten. REQUIRED MATERIALS: Digital case notes (template provided).				
02	AUG 30 @ 0001 hr	SEP 03 @ 2359 hr	SEP 05 @ 2359 hr	≈ 0.5-2
DESCRIPTION: Students are introduced to handwritten case notes by documenting a common object such as a paperclip, mug, baseball, or pen. The item must be described in detail with at least eight (8) observations and a labeled sketch. This exercise is handwritten with pen and paper. REQUIRED MATERIALS: Pen*; printed case notes (template provided); ruler or tape measure; small object such as a pen, tennis ball, sock, etc.				
03	SEP 06 @ 0001 hr	SEP 10 @ 2359 hr	SEP 12 @ 2359 hr	≈ 2-4
DESCRIPTION: Students will create a plan sketch of a defined area such as a room, tabletop, or driveway. The "scene" must contain two objects, one of which will be positioned in the scene using triangulation and the other with rectangular coordinates; these are two common methods of recording the location of evidence at event scenes. This exercise is handwritten with pen and paper. REQUIRED MATERIALS: Pen*; ruler or straight edge; tape measure; printed sketch sheet (template provided); small objects; "scene" (may be as large as a room or as small as a desk or closet).				
04	SEP 13 @ 0001 hr	SEP 17 @ 2359 hr	SEP 19 @ 2359 hr	≈ 3-5
DESCRIPTION: Students will use two online camera simulators to generate photographs of a scene with various camera settings. The photographs will be inserted into a document and the effects of different settings discussed. This exercise is typewritten. REQUIRED MATERIALS: Digital case notes (template provided).				
05	SEP 20 @ 0001 hr	SEP 24 @ 2359 hr	SEP 26 @ 2359 hr	≈ 2-4
DESCRIPTION: Students are provided images of the obverse ("heads") side of three (3) US pennies. They are to document all class characteristics and ten (10) individualizing characteristics visible in photographs by creating case notes and sketches. This exercise is handwritten with pen and paper. REQUIRED MATERIALS: Pen*; printed case notes (template provided).				
06	OCT 04 @ 0001 hr	OCT 08 @ 2359 hr	OCT 10 @ 2359 hr	≈ 3-5
DESCRIPTION: Students will create five (5) series of fingerprints, changing either the deposition material or substrate. Students must photograph each series and insert the photographs into a case notes document. Each series and the effect of changing the selected variable on the appearance of the prints must be discussed. This exercise is typewritten. REQUIRED MATERIALS: Digital case notes (template provided), five different deposition materials (e.g., ketchup, nail polish, ink, paint, chocolate, etc.) and one receiving substrate (e.g., paper, etc.) OR one deposition material (e.g., paint, etc.) and five receiving substrates (e.g., paper, cardboard, tile, wood, asphalt, etc.); Post-it® notes or masking tape (optional).				
07	OCT 11 @ 0001 hr	OCT 15 @ 2359 hr	OCT 17 @ 2359 hr	≈ 10-15
DESCRIPTION: To demonstrate Locard's Exchange Principle, students will wear a colored top over a white or light-colored cotton or cotton-blend shirt. After several hours, tape lifts are taken of the white or light-colored shirt. The tape lifts are placed on a case notes sheet and observations made about the type and quantity of transferred material. The experiment is repeated twice with different colored tops for a total of three (3) sets of tape lifts. The amount and type of transferred material is compared between the three colored tops. This assignment is handwritten with pen and paper. REQUIRED MATERIALS: Digital case notes (template provided); one clean white or light-colored top that can be washed and worn on three separate occasions or three clean white or light-colored tops; three dark-colored tops (e.g., sweater, coat, bathrobe, etc.) that can be worn over the white or light-colored top(s); clear tape (e.g., Scotch™ tape, masking tape, etc.); white paper; magnifying glass (optional); ruler (optional).				
08	OCT 18 @ 0001 hr	OCT 22 @ 2359 hr	OCT 24 @ 2359 hr	≈ 2-4
DESCRIPTION: Students will navigate an online fire investigation simulation, ending with a virtual fire scene where they must search for traces and form hypotheses about what happened based on their findings. This exercise is to be completed on Canvas with multiple choice, multiple select, true/false, and essay questions while working through the simulation. REQUIRED MATERIALS: Nothing.				
09	OCT 25 @ 0001 hr	OCT 29 @ 2359 hr	OCT 31 @ 2359 hr	≈ 2-4
DESCRIPTION: This exercise has two parts. In the first part, students write six (6) words five (5) times each, comparing iterations of the same word to observe the characteristics and variation of their handwriting. This part is handwritten with pen and paper. Students must next match words written by the same author from a pool of the same word written by twenty (20) different authors. The second part is completed on Canvas. REQUIRED MATERIALS: Pen*; printed case notes (template provided).				
10	NOV 08 @ 0001 hr	NOV 12 @ 2359 hr	NOV 14 @ 2359 hr	TBD
DESCRIPTION: To be determined.				
11	NOV 15 @ 0001 hr	NOV 19 @ 2359 hr	NOV 28 @ 2359 hr	≈ 0.5-2
DESCRIPTION: Students will apply knowledge gained through the semester by describing how they would collect and package various types of physical evidence. They will describe an item of potential evidence and provide justification for their chosen method of collection. This assignment is completed on Canvas with short answer and essay questions. REQUIRED MATERIALS: Nothing.				
12	NOV 29 @ 0001 hr	DEC 03 @ 2359 hr	DEC 10 (FRI) @ 2359 hr	≈ 3-6
DESCRIPTION: Students will create and document a mock scene with five (5) items of potential evidence. The scene is to be documented with case notes, one or more sketches, and photography. REQUIRED MATERIALS: Pen*; tape measure; printed case notes, sketch sheet, photo log (templates provided); unique identifiers made of paper, masking tape, Post-it® notes, index cards, etc.; room approximately 8x10 feet; five items of evidence (at least three from this list: fingerprint, shoe print, hairs, fibers, powder, knife or other instrument that could be used as a weapon, cell phone or other electronic device containing digital evidence, questioned document).				
* Pens must be indelible (waterproof) and either black or blue ink. ALSO REQUIRED: camera (mobile phone, point-and-shoot, or DSLR); you will need to photograph or scan handwritten notes for many of the exercises. Requirements regarding the quality of photographs/scans are located within the exercise instructions. If you will have difficulty accessing any of the materials, or completing the assignment for any reason, e-mail a CA as soon as possible.				