

FORENSIC SCIENCE CAPSTONE FRSC 401-001 (5339) (3 credits)

Meeting time: T 12:30- 3:15 pm

SC 5325

Dr. Kelly Elkins

Office: SC4301D

Office Hours: W 12:00-1:00pm and 2:00-4:00pm

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Course Catalog Description: An integrative forensic science course where students demonstrate their scientific literacy, in-depth understanding of forensic problems, communication skills, presentation and writing skills, critical thinking and analysis skills obtained throughout their undergraduate academic experience. Prerequisite: FRSC 367 Forensic Chemistry.

Learning Objectives: The goal of this course is for students to attend seminars, practice and demonstrate skills in preparing and delivering oral and poster presentations, and critically reflect upon and critique presentations.

Course Purpose and Goals: The student studies a forensic problem and presents a solution using effective communication skills in the form of oral and poster presentations. The solution to the forensic problem will draw on the educational material learned during the student's forensic chemistry degree program. Attendance at seminars pertaining to forensic science is required to apprise students of current topics in the field and guide them in the development and delivery of a capstone presentation.

Required Text: None

Reference Texts: The ACS Style Guide: Effective Communication of Scientific Information, by Anne M. Coghill and Lorrin R. Garson. ACS: Washington, DC, 2006.

Course Requirements and Grading:

- Papers, slides, and posters will be evaluated for professional prose, format, use of cited information, logic, clarity, accepted conventions of grammar, spelling, punctuation, word choice, and style, flow, connections, and correctly citing sources using a consistent standard format (JFS preferred). Each infraction is a one point deduction.
- Failure to cite sources may lead to failure of the assignment or course in accordance with the TU Plagiarism policy.
- Missing thesis statements, arguments, content blocks, supporting information or sources (as directed), and/or inadequate word count will result in a 5% penalty per infraction.
- Each incorrect item will be marked and the scores and deductions be indicated on your graded assignment.
- Assignments will be graded on Blackboard.

- Late assignments will be penalized 10% per each portion of a one week period after the deadline.
- All requests for regrading must be received within a week (7 calendar days) of receiving the grade on the assignment. No requests for regrading of assignments will be granted following the submission of final grades at the conclusion of the semester. If a math error is suspected in computing the total points, a points recomputation will be processed.

Course Evaluation:

Seminar attendance (10%),
 Presentations (50%),
 Paper (25%),
 Oral / poster presentation and paper critiques (10%),
 Reflection (5%).

Graded Assignments-Details:

Seminar Attendance (10%): Students will attend and provide a short written report on a minimum of 4 seminars throughout the semester. The seminars may be on any forensic topic, but must be presented by a professional scientist. A schedule of Chemistry Department Seminars, FCSM Seminars, Towson University Seminars, and other approved seminars (including recorded seminars) will be provided on the blackboard site for the course.

Presentations (50%): Each student will present 2 oral seminars and one poster presentation during the semester. Presentations will be graded by the instructor and other faculty members in attendance using a critique rubric. Grading will be based upon content provided on slides, content delivery and ability to answer questions correctly. The presentation will focus on the forensic and chemical/biological aspects of the topic and peer-reviewed journal articles must be used. The instructor will approve all topic and content selection and provide written feedback so that the students can improve on their next presentation.

Oral Presentation #1 (15%): Students will present a seminar on the theory of a forensic method based on information collected from the literature. The presentation will be 15 minutes followed by 5 minutes for questions.

Oral Presentation #2 (20%): Students will present a seminar on the chemistry/biology of a forensic method or forensic product reported in the literature and used in the field. The presentation will be 15 minutes followed by 5 minutes for questions.

Poster Presentation (15%): Students will present a poster on a topic chosen in consultation with the instructor. The presentation will occur during the final exam period scheduled for the course.

Review Article Research Paper (25%): Each group of four students will write a 10-12 page research article review paper during the semester. Papers will be graded by the instructor using a

rubric and reviewed by practitioners. Papers will focus on the forensic and chemical/biological aspects of the topic and review a current area of research. Peer reviewed journal articles must be used. The instructor will approve all topic and content selection and provide written feedback so that the students can improve on their outlines and journal articles selected to review to improve topic coverage and depth. The papers will be centered on a topic and combined to form a review paper that may be published in a journal with the students as coauthors.

Oral/Poster Presentation and Paper Critiques (10%): An important part in developing presentation and writing skills is to give and receive feedback on presentations. Each student will provide critical assessment of their peers' oral and poster presentations and paper outlines. The critical evaluations will account for 10% of the student's final grade. Critiques will be judged on insight and understanding.

Reflection (5%): An important part in developing presentation skills is to reflect upon what went well in the presentations and what can be improved in future presentations. Each student will provide critical reflection of their presentation strengths and skills that they will work to improve. The reflection will account for 5% of the student's final grade and will be evaluated on insight and thoughtfulness.

Grades:

Letter grade will be assigned based on the following:

93% points and above = A

90-92.9% = A-

87-89.9% = B+

83-86.9% = B

80-82.9% = B-

77-79.9% = C+

70-76.9% = C

67-69.9% = D+

60-66.9% = D

Less than 60% = F

Schedule:

Week	Topic	Assignment
8/25	Oral Presentation Strategies and use of PowerPoint Introduction to Literature Research Select topic for Oral presentation #1 (15 minutes)	Submit 2 topics by next class for presentation #1
9/1	Further notes on slide preparation Draft Oral presentation #1 outline	Articles for Oral presentation #1 due in class
9/8	Peer review of draft slides Presentation #1 delivery practice	Draft of Oral presentation #1 slides due in class

9/15	Oral presentation #1 Select topic/expansion for Oral presentation #2 (15 minutes)	Completed presentation due in class Submit 2 topics for presentation #2 by next class
9/22	Draft Oral presentation #2 outline	Articles for Oral presentation #2 due in class
9/29	Peer review of draft slides Presentation #2 delivery practice	Draft of Oral presentation #2 slides due in class
10/6	Oral presentation #2 Select topic for review article research paper	Completed presentation due in class Submit 2 topics for paper by next class
10/13	Writing a review article research paper Research for paper	2 journal articles for research paper due in class Reflection #1 due
10/20	Outlining the review paper and searching for additional supporting papers	3 journal articles for research paper due in class
10/27	Peer review of outline and journal articles	Outline for paper due in class 10 additional journal articles for paper due in class
11/3	Peer review of draft review article research paper	Draft of paper due in class
11/10	Preparing Poster presentations on a slide in PowerPoint	Review article research paper due in class
11/17	Draft Poster presentation	Poster topic and journal article for poster presentation due in class
11/24	<i>Thanksgiving week</i>	
12/1	Poster critique and poster oral delivery practice	Poster draft due Final Poster due for printing two days prior to Poster presentation
12/8	Final Exam Period – Final Presentation (15 min) Group Q&A on Research Paper Topic with Practitioners	Poster Presentations TBA Reflection #2 due 1 page reports of each of 4 seminars and reflection due

Policy on Attendance:

There will be a direct correlation between student performance and classroom attendance. Attendance will be taken and participation will be recorded. Students who miss a class are responsible for obtaining all missed materials and information. The minimum number of seminars is required for full credit. Students who fail to submit an assignment or deliver a presentation on the appropriate date due to a University-sanctioned reason (with appropriate documentation) will be allowed to arrange a make-up opportunity directly with the instructor for full credit. In the case of non-University-sanctioned absences, a late penalty of 10% per class period will be applied to the grade of the make-up presentation. For more information, access the University Attendance

Policy: <https://catalog.towson.edu/undergraduate/academic-policies/class-attendance-absence-policy/>.

Disability Statement:

This course is in compliance with Towson University policies for students with disabilities. Students with disabilities are encouraged to register with Accessibility & Disability Services (ADS), University Union, Suite 146, 410-704-2638 (Voice) or 410-704-4423 (TDD). Students who suspect that they have a disability but do not have documentation are encouraged to contact ADS for advice on how to obtain appropriate evaluation. A memo from ADS authorizing your accommodation is needed before any accommodation can be made.

<https://www.towson.edu/accessibility-disability-services/>

Diversity Statement:

The students, faculty, and staff at Towson University represent a diverse and vibrant community of learners and scholars. As a community, we value the unique contributions of each individual and promote active participation in all aspects of the learning process by each community member. Towson University values diversity and fosters a climate that is grounded in respect and inclusion, enriches the educational experience of students, supports positive classroom and workplace environments, promotes excellence, and cultivates the intellectual and personal growth of the entire university community. Your instructor strives to create a classroom environment built upon the principles of mutual respect and support. Toward this end, all members participating in this course are expected to demonstrate respect for all other members of the class. Should you feel that you are experiencing a negative environment related to diversity issues or cultural sensitivity, we encourage you to speak with your instructor or to contact the Chemistry Department's Diversity Liaison, Dr. Cynthia Zeller, czeller@towson.edu. See also <https://www.towson.edu/fcsm/departments/chemistry/diversity.html>. For further information regarding the diversity and inclusion policies of Towson University, please see the Towson University Commitment to Diversity, the Fisher College of Science and Mathematics Diversity Action Website, and the Chemistry Department Diversity Action Plan.

Policy on Academic Dishonesty:

All types of academic dishonesty are deplorable and severe consequence actions will be taken. All students must familiarize themselves with the TU policies on academic integrity and will be held accountable for all standards outlined in this policy. Note that academic dishonesty includes (but is not limited to) cheating and allowing another student to cheat. Resubmission of previous work is also a violation of the academic integrity policy under definition 2.G. Every student found in violation of the university's academic integrity policy will be penalized, possibly including a grade of F for the course. The Towson University Code of Conduct prohibits "all forms of dishonesty including cheating (and) plagiarism." Plagiarism is copying the words of another or the use of ideas of another without proper citation. Plagiarism can result from copying an entire document to inappropriate paraphrasing. In order to avoid plagiarism, the use of words or ideas of another without proper citation, it is imperative to consciously think about what you have read and what you are trying to write. In scientific literature, we do not normally use direct quotes from the

primary resources that we are using to gather our information. It is important to paraphrase the ideas and conclusions obtained from the primary literature and rewrite them in your own words. One method to assure that you will not plagiarize is to take notes on each of your primary resources and then write the paper based on your notes, not from the references. Your paper will summarize the works of others, not directly quote from them. If you have any questions about plagiarism and correct citations see <https://towson.libguides.com/c.php?g=530232> for further examples and methods to correct the problems. The consequences of cheating or plagiarism will be a failing grade of 0 points for the assignment and may result in failure of the course. Plagiarism, fabrication, falsification, cheating, complicity in academic dishonesty, abuse of academic materials, multiple submissions of the same work or part thereof for multiple courses/assignments, will not be tolerated and will result in a failing grade of 0 for that assignment and may result in failure of the course.

Reporting Hate Crimes and Bias Incidents:

Towson University prohibits all students, staff, and faculty from committing or engaging in any hate crimes as defined under state and federal law, or any acts of bias, hate, or prejudice exhibited in conduct that is in violation of another University policy on campus, on University property, at University sponsored events, or when engaged in University activities and business on or off campus. The University must receive notice to respond effectively to alleged Hate Crimes or Bias Incidents in the University Community. Please report or file a complaint of a Hate Crime or Bias Incident in the following ways:

- Report to University Police: Towson University's Police Department (“TUPD”) will determine if incidents are criminal in nature. In cases of hate crimes, individuals can be punished with fines and/or imprisonment. Felony offenses demonstrated to be motivated by bias are subject to enhanced penalties.
- Contact the Office of Inclusion & Institutional Equity: Online at: <https://towson.edu/notattu>, email at: OIIE@towson.edu, telephone, in person or via regular mail. <https://www.towson.edu/about/administration/policies/06-01-20-policy-procedures-reporting-hate-crimes-bias-incidents.html>

Course Repeat Policy: “Students may not repeat a course more than once without prior permission of the Academic Standards Committee.”

Title IX Policy:

Towson University (TU) is committed to ensuring a safe, productive learning environment on our campus that does not tolerate sexual misconduct, including harassment, stalking, sexual assault, sexual exploitation, or intimate partner violence [Policy 06.01.60]. It is important for you to know that there are resources available if you or someone you know needs assistance. You may speak to a member of university administration, faculty, or staff, but keep in mind that they have an obligation to report the incident to the Title IX Coordinator. It is a goal that you feel able to share information related to your life experiences in classroom discussions and in one-on-one meetings. However, it is required to share information with the Title IX Coordinator regarding disclosures, but know that the information will be kept private to the greatest extent possible. If you want to

speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the TU Counseling Center 410-704-2512 to schedule an appointment, and locally within the community at TurnAround, Inc., 443-279-0379 (24-hour hotline) or 410-377-8111 to schedule an appointment.” <http://towson.edu/titleix>

Counseling Resources

The Towson University Counseling Center (TUCC) provides free and confidential counseling services. For more information about TUCC, please visit their website at <https://www.towson.edu/counseling>. To make a same-day appointment or for after-hours crisis assistance, please call 410-704-2512.

Bibliography

Books:

Banik GM, G baysinger, PV Kamat, and N Pienta. (2020) The ACS Style Guide: Effective Communication of Scientific Information, 4th ed. ACS: Washington, DC. ISBN: 9780841235861

Davis M, KJ Davis, and M Dunagan. (2012) Scientific Papers and Presentations, 3rd ed. Elsevier Academic Press: Waltham, MA, 368 pp. ISBN: 9780123847270

Overton T, S Johnson, and J Scott. (2019) Study and Communication Skills for the Chemical Sciences, 3rd ed. Oxford University Press, 288 pp. ISBN: 9780198821816

Pechenik JA, Davis HB, Tyson JF. (2009) A Short Guide to Writing About Chemistry, 1st ed. Pearson, 288 pp. ISBN: 9780205550609

Robinson MS, FL Stoller, MS Costanza-Robinson, and JK Jones. (2008) Write Like a Chemist: A Guide and Resource, 1st ed. Oxford University Press, 688 pp. ISBN: 9780195305074

Journal Articles:

ACS Careers. (2018) Poster presentations that pop. *C&EN Global Enterprise* 96(32):45. DOI: 10.1021/cen-09632-careertips

Butler JM. (2013) The triad of scientific publication: reading, writing, and reviewing. *Forensic Sci. Int. Genet.: Suppl. Ser.* 4(1):e115-e116. DOI: 10.1016/j.fsigss.2013.10.059

Erren TC and PE Bourne. (2007) Ten simple rules for a good poster presentation. *PLoS Comput. Biol.* 3(5):e102. DOI:10.1371/journal.pcbi.0030102

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Youmans HL. (1973) Small-group seminar for developing communication skills in chemistry majors. *Journal of Chemical Education* 50(8)565. DOI: 10.1021/ed050p565