Marshall University Syllabus
College of Science
Forensic Science Graduate Program

Course

FSC 626 Advanced Drug Analysis

Course Description

Concentration on modern analytical methods used in the isolation and the identification of illicit drugs and their metabolites in biological samples and other forensic evidence. (PR: FSC 622 or permission of instructor)

Credits
2 Graduate Credits

Prerequisites
FSC 622

Term/Year

Spring 2025

Class Meeting Days/Times

Tuesdays and Thursdays from 2:30 – 3:30 PM

Location

Forensic Science Center West Wing classrooms

Academic Calendar

For beginning, ending, and add/drop dates, see the Marshall University Academic Calendar (URL: https://www.marshall.edu/academic-calendar/).

Instructor

Lauren Richards Waugh, Ph.D.

Contact Information

- Office: WW 200EE
- Office Hours: Mondays, Tuesdays, & Thursdays 10 AM – 12 PM
- Office Phone:

- Marshall Email: richards18@marshall.edu
- Personal Cell: 412-445-7690

Health and Safety Information

All members of the Marshall University community are expected to always observe health and safety protocols. This includes general health and safety protocols as well as specific protocols that might emerge in response to community and campus health conditions.

Campus Carry Policy

University Policy, UPGA-12 (Campus Carry Policy) derives its authority from West Virginia State law, including the Campus Self-defense Act (W. Va. Code § 18B-4-5b). It pertains to the exercise of Concealed Carry on Marshall University's campus, except in designated areas, by individuals with a valid permit to Conceal Carry.

Individuals who choose to Conceal Carry are responsible for knowing and understanding all applicable federal, state, and local laws and Marshall University Board of Governors Rules, University Policies, and Administrative Procedures. University Policy, UPGA-12 applies to areas of campus and buildings that are directly under the possession or control of Marshall University.

Concealed handguns are not observable to others and must be holstered and concealed on the body of the permit holder or in a personal carrier, such as a backpack, purse, or other bag that remains under the exclusive and uninterrupted control of the permit holder. This includes wearing the personal carrier with a strap, carrying or holding the personal carrier, or setting the personal carrier next to or within your immediate reach at all times. If your participation in class activities impedes your ability to maintain constant control of your handgun, please make alternate arrangements prior to coming to class.

Required and/or Recommended Texts and Materials

Required Texts and Materials

None

Recommended/Optional Texts and Materials

Cole, Michael; *The Analysis of Controlled Substances*, Wiley, UK, 2003. Text contains questions which may be found on the exams. Course Student Learning Outcomes

Course Student Learning Outcomes

Upon successful completion of the course, students should be able to:

- Identify the mechanisms of drug uptake, elimination, and metabolism in the body
- Analyze the action of various classes of drugs in the body
- Describe the analysis of drugs, their metabolites, and other toxic substances in the body, both pre and post-mortem

- Discuss problems and challenges of forensic toxicology as related through case histories
- Understand the Code of Ethics and professional responsibilities as outlined by the American Board of Forensic Toxicology (ABFT)
- Understand the quality assurance guidelines as outlined by ABFT

Course Requirements/Due Dates

You will be given access to lectures and handouts the first week of class through Teams. You may bring a laptop and take notes directly into the PPT file during lectures. You are expected to have read any assigned reading materials and applicable chapter(s) in the text prior to class. All cell phones and other devices should be silenced and put away during lecture. **Playing computer games and/or texting during lectures is considered rude behavior towards the lecturer and may be detrimental to your grade!**

There will be three exams throughout the semester. They will be spaced as evenly as possible throughout the semester. If we get behind in covering the material listed in the syllabus, the exam will cover on through what has been discussed. **I am reluctant to move an exam**. You are now in graduate school and should be able to handle more than one exam in the same week. You are expected to read all material and notes relevant to the lectures prior to class. Exam questions are primarily short answer and may be cumulative. Objectives provided for each lecture are aimed toward helping you to prepare for exams. I attempt to cover all material in objectives, but exam questions are not limited to only the lecture objectives. All material presented in class is testable.

Grading Policy

Exams may only be missed for an excused absence.

Exam/Assignment	Point Value
Exam 1	75
Exam 2	75
Exam 3	75
Exam 4	75
Research Paper	100
Course Total	**400**

Points Earned	Grade
360 - 400	A
320 - 359	B
280 - 319	C
240 - 279	D
239 and below	F

Attendance/Participation Policy

Attendance is Mandatory: Students enrolled in the Forensic Science Program are expected to attend all classes, laboratories, seminars, internship sessions, and presentations offered by guest speakers. Should you need to miss classes due to COVID-19, appropriate accommodations will be provided.

Excused Absences: The professor must be notified of absences. Formal documentation is required for Excused Absences which may involve physician statements excusing the student from class, obituaries, or professional travel documentation. No exams, labs, or other formal exercises will be made up without an Excused Absence. With an Excused Absence, the student may be asked to take an exam BEFORE the scheduled date. Examples of Excused Absences include

- Personal Medical Emergency – Formal documentation is required from a licensed physician or appropriate healthcare provider
- Death in the Immediate Family – Documentation required
- Forensic Professional Travel – Documentation required. Marshall University Forensic Science Program, Marshall University, the West Virginia Policy Board for Higher Education are not liable for accidents or injuries incurred during trips within or out of the state.

Unexcused Absences: Any unexcused absence in which a student misses a graded activity or assignment identified in this syllabus may result in a zero for the activity or assignment.

Punctuality*:* On time arrival is expected of all students. A ***point deduction of 20 points*** will be made if a lack of punctuality is persistent (>3 times for the semester).

Generative Artificial Intelligence (AI) Use Policy

Students are allowed to use Generative AI in some ways but are prohibited from using it in other ways. Keep in mind that any content produced by generative AI can "hallucinate" (produce false information), so students are responsible for ensuring the accuracy of any AI-generated content. For information on citing AI, please see **MU Library's AI citation website** (URL: https://libguides.marshall.edu/plagiarism-AI/cite). Students should not use generative AI in any way that would violate the **Student Code of Conduct** (URL: https://www.marshall.edu/student-conduct/).

Students are permitted to use generative AI in the following ways:

- **Brainstorming**: You may use generative AI to stimulate creativity, generate ideas, or brainstorm topics for papers, presentations, and discussions. The generated content must serve as a stepping stone, not a final product.
- **Citation Assistance**: AI tools can be used to manage, format, and organize citations and references, promoting adherence to academic writing standards and specific style guides required for individual assignments.
- **Grammar and Style Checking**: AI-powered writing enhancement tools may be used to help with spelling, grammar, syntax, and stylistic errors.
- **Concept Understanding**: Generative AI can be used to explain or simulate concepts taught in class, aiding in a deeper understanding.
- **Research Assistance**: AI can be used to conduct initial literature searches, compile citation data, and summarize articles, books, or papers. It should not replace traditional background research methods but rather enhance them.

Students are <u>not</u> permitted to use generative AI in coursework in the following ways:

- **Plagiarism**: Using AI-generated content as your original work without attribution. This includes essays, papers, presentations, and exam answers.
- **Data Manipulation**: Using AI tools to alter data or create misleading information.
- **Misrepresentation of Skills**: Using generative AI to complete tasks that are meant to assess your knowledge and skills.

- **Confidentiality Breach**: Using AI tools that might violate university policies or laws related to data privacy and confidentiality.

See individual assignment instructions for any additional details.

In addition to a proper citation, the student should include the following statement with any assignment where generative AI is used for assistance:

"I used generative AI platform [INSERT NAME OF PLATFORM, SUCH AS CHAT GPT] for assistance in the following ways on this assignment: [INSERT WAYS USED, such as brainstorming, citation assistance, grammar and style checking, concept understanding, and research assistance, etc.]."

University Policies

By enrolling in this course, you agree to the University Policies. Please read the full text of each policy (listed below) by going to MU Academic Affairs: University Policies. (URL: https://www.marshall.edu/academic-affairs/policies/)

- Academic Dishonesty Policy
- Academic Dismissal Policy
- Academic Forgiveness Policy
- Academic Probation and Suspension Policy
- Affirmative Action Policy
- Dead Week Policy
- D/F Repeat Rule
- Excused Absence Policy for Undergraduates
- Inclement Weather Policy
- Sexual Harassment Policy
- Students with Disabilities (Policies and Procedures)
- University Computing Services Acceptable Use Policy

Course Schedule

Week	TUESDAY	THURSDAY	Notes
13-Jan	Drug Classification	Representative sampling	
20-Jan	Finish representative sampling	Quantification of Chromatographic Data	
27-Jan	Chemical Derivatization	Presumptive testing of amphetamines	
3-Feb	**Exam 1**	Amphetamines production and testing	
10-Feb	Clandestine lab investigation	**February break. Class dismissed**	**Paper topic with references due Tues. Feb 11**
17-Feb	Cocaine	Impurity Profiling	Recorded lectures - AAFS Week
24-Feb	Opiates	Benzodiazepines	
3-Mar	**Exam 2**	Barbiturates	
10-Mar	Antidepressants	Steriods	
17-Mar	Spring Break - Classes dismissed		**NO CLASSES**
24-Mar	Hallucinogens	Hallucinogenic Plants	**Paper first draft due (Thurs.)**
31-Mar	Designer Drugs	Catch Up Class	
7-Apr	**Exam 3**	Synthetic Cannabinoids	
14-Apr	Novel Psychoactive Substances		**Final draft due (Tues.)**
28-Apr	GC/IR for Drug Analysis	Class discussion	
5-May	**Exam 4**	Final exam Tues during normal class time	