Marshall University Syllabus
College of Science
Forensic Science

Course

FSC 629 Advanced DNA Technologies

Course Description

This course will provide advanced instruction in DNA technologies to assist in the preparation for a career in a forensic DNA laboratory.

Credits
2 graduate credits

Prerequisites
Formal admission to the Graduate Forensic Science Program. Completion of FSC 604 and FSC 603 (or FSC 643).

Term/Year

Fall 2024

Class Meeting Days/Times

Thursday/12pm-2pm

Location

Annex, A115

Academic Calendar

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

Instructor

Kelly Beatty, MS

Contact Information

- Office: W200B, phone 304-691-8953
- Office Hours: M-Th 9am-11am or by appointment.
- Marshall Email: kbeatty@marshall.edu

COVID-19 Related Information

Marshall's official COVID-19 protocols are online at https://www.marshall.edu/coronavirus (URL: https://www.marshall.edu/coronavirus/). Policies and protocols may change over time as we respond to changing conditions. The website will always contain the most recent information – check it frequently for the most current information.

Required and/or Recommended Texts and Materials

Required Texts and Materials

None are required

Recommended/Optional Texts and Materials

Advanced Topics in Forensic DNA Typing: Interpretation, Butler

Course Student Learning Outcomes

The table below shows the following relationships: How each student learning outcome will be practiced and assessed in the course.

Course student learning outcomes	**How students will practice each outcome in this course**	**How student achievement of each outcome will be assessed in this course**
Discuss interpret and locate the individual standards outlined in the FBI QAS	In-class discussion and homework assignment	Class and homework assignments will be used for assessment as well as two (2) exams (midterm and final)
Assess DNA EPG results, troubleshoot possible explanations for the data obtained and identify methods to resolve the issues	In-class discussion and homework assignment	
Analyzed mixed DNA profiles from criminal evidence with reference DNA profiles, draw conclusions, and calculated relevant statistics to describe the conclusions reached	In-class discussion and homework assignment	

Course student learning outcomes	How students will practice each outcome in this course	How student achievement of each outcome will be assessed in this course
Manual deconvolutions and probabilitistic genotyping	In-class discussion and homework assignment	
Defend opinions rendered regarding DNA results and conclusions in a mock testimony	In-class discussion and homework assignment	

Course Requirements/Due Dates

Assignment due dates will be a week after first assigned.

Tentative exam dates: Midterm 10/3/24 and Final 12/12/24.

Grading Policy

Grading Scale:

90-100% - A

80-89% - B

70-79% - C

60-69% - D

59% and below – F

*Exam questions in which less than 35% of the class receives full credit will be considered for omission from the tinal score at the instructor's discretion. If removed, the points per exam and total points will be adjusted appropriately.

Attendance/Participation Policy

- Attendance is Mandatory: Students enrolled in the Forensic Science Program are expected to attend all classes in-person when possible. If you are sick or not able to make it to class, a phone call or email is required ***BEFORE*** class time. Class will be live in Teams to allow for remote attendance and class recordings will be available if attendance (in-person or virtual) is not possible.
- If you are unable to take an exam on the selected day, arrangements must be made ***BEFORE*** the scheduled exam date. Failure to do so will result in a failing grade.

- Completion of an Instructor signed Student Absence form is facilitated by the Student and sent the the Program Director. This may occur before the absence (recommended) or on the first day of class upon return. Completed Student Absence forms (form bearing signatures of the Student, Instructor(s), and Program Director) will be placed in the Student's formal file. The Student Absence form can be found in the Student section of the MU Forensics website Secure Section - (marshall.edu).
    - Excused Absence: The Program Director and the Instructor must be notified of absences. Formal documentation is required which may involve physician statements excusing the Student from class, obituaries, or professional travel documentation. No exams or other formal exercises will be made up without an Excused Absence.
    - Unexcused Absence: Any unexcused absence in which a student misses a graded activity will result in the deduction of one letter grade from the student's final grade.
- Punctuality: On time arrival is expected of all students. A point deduction of 25 points will be made if a lack of punctuality (in-person or virtually) is persistent (>3 times for the semester).
- Any student who believes the final course grade is incorrect may appeal the grade. Appeals - Graduate Studies (marshall.edu)

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

Generative AI is fully prohibited in the course.

- Students are prohibited from using generative AI in any way on any assignment in this course. The use of generative AI in this course will be considered a violation of both Marshall's **Academic Dishonesty Policy** (URL: https://www.marshall.edu/academic-affairs/policies/#academicdishonesty) and the **Student Code of Conduct** (URL: https://www.marshall.edu/student-conduct/files/Studnet-Code-of-Conduct-2022.pdf).

Course Schedule *Dates/Topics are subject to change.

Week	Activity/Assignment
Week 1	Introduction, standards (QAS), human factors
Week 2	Standards and human factors
Week 3	Standards, human factors, and reporting Report 1
Week 4	DNA data troubleshooting (data, decision making, 603 data)
Week 5	DNA data troubleshooting (data, decision making), Mixtures
Week 6	Mixtures, Conclusions and Statistics Data exercise
Week 7	Midterm, October 3rd (flexible)
Week 8	**Fall Break – University Closed**
Week 9	Likelihood ratios and propositions Report 2
Week 10	Manual Deconvolution (4 peaks) 4 peak HW
Week 11	Manual Deconvolution (3 peaks) 3 peak HW

Week	**Activity/Assignment**
Week 12	Manual Deconvolution (2 peaks) 2 peak HW, Report 3
Week 13	Software Modeling and Probabilitstic Genotyping, Report 4
Week 14	Statement Review and Testimony Report 5
Week 15	NO CLASS – Thanksgiving Break
Week 16	Pre-Finals Week – Mock Trials
Week 17	Final Exam, December 12th