

CHEM 6991Z - ST Forensic DNA

Fall 2026 Syllabus, Section 01, CRN 44026,

Credit hours: 3

Instructor

Reza Alaeddini

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Public Instructor Information

Instructor Title: Assistant Professor of Forensic Science

Instructor Professional Qualifications: PhD, Chemical and Biomolecular Engineering, University of Sydney, Australia, 2010

Instructor Office Location: Ward Beecher Hall 3041

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Course Description

6991Z. ST Forensic DNA. This course provides an in-depth study of forensic DNA analysis, combining theoretical lectures with practical laboratory experience. Students will explore various DNA analysis methodologies, including extraction, quantification, amplification, and interpretation of results. The course also covers forensic population genetics, focusing on statistical approaches to DNA profile interpretation and probability calculations in forensic casework. The laboratory component offers hands-on training with contemporary forensic DNA techniques, preparing students for real-world forensic investigations. Prereq.: Graduate standing or permission of instructor. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Course notes and materials posted on Blackboard		
Optional	Advanced Topics in Forensic DNA Typing: Methodology	John M. Butler	978-0123745132
Optional	Advanced Topics in Forensic DNA Typing: Interpretation	John M. Butler	012405854X

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
8/24	Syllabus Chapter 1	Course Introduction Introduction to Forensic DNA	Review Syllabus Review Chapter 1
8/31	Chapter 2	DNA Evidence	Complete Syllabus Acknowledgement Review Chapter 1 Chapter 1 Quiz and Assignment
9/7	Chapter 3	Sample Collection	Review Chapter 3 Chapter 2 Quiz and Assignment
9/14	Chapter 4	Short Tandem Repeats	Review Chapters 4 Chapter 3 Quiz & Assignment
9/21	Chapter 5	DNA Quantitation	Review Chapter 3 Chapter 4 Quiz & Assignment
9/28	Chapter 6	Capillary Electrophoresis	Review Chapter 6 Chapter 5 Quiz & Assignment

10/5	Mid-term Exam, Chapters 1,2,3,4,5,6 Chapter 7 Lab work	Mid-term Exam, Chapters 1,2,3,4,5,6 Degraded DNA	Mid-term Exam, Chapters 1,2,3,4,5,6 Review Chapter 7 Chapter 6 Quiz & Assignment
10/12	Chapter 8 Lab work	SNPs	Review Chapter 8 Chapter 7 Quiz & Assignment
10/19	Chapter 9 Lab work	Y Chromosome Analysis	Review Chapter 9 Chapter 8 Quiz & Assignment
10/26	Chapter 10 Lab work	Mitochondrial DNA	Review Chapter 10 Chapter 9 Quiz & Assignment
11/2	Chapter 11 Lab work	Biological Basis for DNA Evidence	Review Chapter 11 Chapter 10 Quiz & Assignment
11/9	Chapter 12 Lab work	The framework for DNA Interpretation	Review Chapter 12 Chapter 11 Quiz & Assignment
11/16	Chapter 13 Lab work	Bioinformatics	Review Chapter 13 Chapter 12 Quiz & Assignment
11/23	Chapter 14	Lab work	Review Chapter 14 Chapter 13 Quiz & Assignment
11/30	Chapter 15	Lab work	Review Chapter 15 Chapter 14 Quiz & Assignment
12/7	Exam 2, all chapter taught after Exam 1	Exam 2, all chapter taught after Exam 1	Monday 1030-1230

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.