

INSTRUCTOR

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Chemistry

Office: 2 Henry Hall

Office Hours: Tuesday 3:00PM – 5:00PM, Friday
9:00AM – 11:00AM or by appointment

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**COURSE DESCRIPTION****FS 630 Forensic Chemistry (3)**

Introduction to the theory and application of analytical instruments commonly employed in forensic science and criminalistics. Data collection and treatment, analytical calibration methods, instrument performance and evaluation characteristics, quality assurance, sample preparation techniques, and spectroscopy based instrumental techniques. Forensic science ethical issues will be integrated into lecture and discussions. *Concurrent registration in FS 630L required.*

LEARNING OBJECTIVES

Upon completion of this class students will understand the role of a forensic chemist in the judicial system and have the ability to:

- Demonstrate the knowledge, skills and traits required of a forensic chemist
- Discuss the theory and limitations of forensic chemistry analyses
- Communicate verbally about a wide range of forensic chemistry evidence
- Explain the importance of quality assurance, quality control, ethics, accreditation and certification
- Critically evaluate the content and design of research in the field of forensic chemistry

REQUIRED TEXT

Bell S (2013) Forensic Chemistry. 2nd Edition. Pearson: Boston, MA.

EVALUATION OF STUDENT PERFORMANCE*Oral Examinations*

Each student will complete 2 exams. The first oral examination will be administered during a class period. The second oral examination will take place during finals week and will not be cumulative.

Presentation

Each student will be required to give one oral presentation on a peer-reviewed study that demonstrates novel forensic chemistry research. Articles will be pre-approved by the instructor.

Critical Review

Each student will provide a written review on the article chosen for their oral presentation including a summary, point-by-point analysis, and perspective.

Class Participation Marks (CPM)

Discussion-based activities will be performed in each class on lecture content and assigned readings. Students will be awarded participation marks for these discussions. Students may request a written version of this task only for absences.

Activity	Weight
Oral Examination 1	20%
Oral Examination 2	30%
Presentation	20%
Critical Review	15%
Class Participation	15%

The grading scale is:

100% - 90%	A
89% - 80%	B
79% - 70%	C
69% - 60%	D
≤ 59%	F

TENTATIVE SCHEDULE (Subject to change, changes announced on Canvas)

Week	Date	Subject	Notes
1	17 Jan	Course Overview	
	19 Jan	Introduction	
2	24 Jan	Metrology	
	26 Jan	QA/QC	
3	31 Jan	Microscopy	
	2 Feb	Spectroscopy and MS	
4	7 Feb	Sample Preparation	
	9 Feb	Gas Chromatography	
5	14 Feb	No classes – AAFS Meeting	
	16 Feb	No classes – AAFS Meeting	
6	21 Feb	Liquid Chromatography	
	23 Feb	Capillary Electrophoresis	
7	28 Feb	Research	Presentation instructions
	2 Mar	Oral Examination 1	
8	7 Mar	Colorants	
	9 Mar	Combustion & Fire Debris	
9	14 Mar	Firearms	
	16 Mar	Explosives	
10	21 Mar	No Classes – Spring Recess	Article choice deadline
	23 Mar	No Classes – Spring Recess	
11	28 Mar	Presentation Workshop	
	30 Mar	Overview of Drugs	
12	4 Apr	Drug Analysis	
	6 Apr	Toxicology	
13	11 Apr	Oral Presentations	
	13 Apr	Work period – Critical Review	
14	18 Apr	Chemometrics	Critical Review due
	20 Apr	Soil Chemistry	
15	25 Apr	Decomposition Chemistry	
	27 Apr	GC×GC	
16	2 May	Guest Lecture or Activity	
	4 May	Review	
Finals	9 May	Oral Examination 2	8:30-10:30 AM

ADDITIONAL DIVISIONAL AND UNIVERSITY POLICES*Electronic Devices*

Use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, unless specifically permitted by your instructor. Use of cellphones and music devices in laboratories is a safety issue. In addition, use of cellphones and music devices in any class is discourteous and may lead to suspicion of academic misconduct. Students who cannot comply with this rule will be asked to leave class and may be subject to laboratory safety violation fines. You will be asked to leave class and marked absent if you do not comply. This will negatively affect your grade. Please refer any questions to the Dean of Natural Sciences and Mathematics.

ADAA Statement

Pursuant to several federal and state laws, including the Americans with Disabilities Act of 1990, as amended by the ADA Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973, all qualified students with disabilities are protected from discrimination on basis of disability and are eligible for reasonable accommodations or modifications in the academic environment to enable them to enjoy equal access to academic programs, services, or activities. If a student would like to determine if they meet the criteria for accommodations, they should contact the Counseling Center at 808-735-4845 for further information.

Attendance & Tardiness

Students are expected to attend regularly all courses for which they are registered. Students should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension or by leaving a message with the instructor's division office (Natural Sciences and Mathematics +1 (808) 440-4204). It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially **withdrawing** may receive a failing grade.

Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being **withdrawn** from the course by the instructor, although the instructor is not required to **withdraw** students in that scenario. Repeated absences put students at risk of failing grades.

Policy on Make-Up Exams

Make-up exams will not be given.

Policy on Communication

The University provides a Chaminade email address for all students. Official Chaminade communications will be sent to the students' Chaminade email address

and instructors will use only this email to communicate with students. It is the responsibility of the student to check their email frequently. Report email-related problems to the Helpdesk at 808-735-4855 or helpdesk@chaminade.edu.

Laboratory Safety Information

The following guidelines are established to provide instructions in maintaining safety for students, staff, and faculty while using any of the science laboratories at Chaminade University. The Division of Natural Sciences and Mathematics (NSM), along with the University Environmental Safety Office are responsible for enforcing the regulations set forth in the current Student Handbook. Queries should be addressed to: Dean of Natural Sciences and Mathematics (808) 440-4204; Environmental Safety Officer (808) 739-4811

Title IX Declaration

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. Should you want to speak to a confidential source you may contact the following:

- Chaminade Counseling Center| 808 735-4845.
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

Academic Honesty

Students are expected to have read and to abide by the "Student Rules of Conduct" which are available in your copy of Chaminade University's Student Handbook. Cheating in the form of plagiarism, collusion, deception and will not be tolerated and will negatively affect your grade.

The instructor may modify elements of this syllabus according to the operational needs of the class.