

Chemistry 4015/6015
Revised Separation in Biosciences Spring 2020

*Video Location On-line via i-college

All on-line lecture will be posted on or before for each day (Tue/Thurs 3:45-5:00 p.m)
March 31st-May-5 2020

***Open your i-college account**

- (a) select your course "separation in bioscience" © 2020 by clicking on the waffle icon.
- (b) select Course tool and then select Kaltura Course Gallery.

All on-line video lecture will be posted on or before the class time schedule

Instructor:

Digital Office: Shahab A. Shamsi, via discussion board or by setting a phone appointment, Phone (678)-761-0507; E-mail address: sshamsi@gsu.edu

Appointment: via digital online discussion board (5:00 -6:00 pm on Tue/Thurs) immediately after online-lecture (or TBA by appointment on phone or via i-college)

Reference text and resources: (1) Lecture notes (to be provided in class);
(2) Reference book (to be available in D2L), reference textbook in library

Remaining Course Objective:

- * To learn basic principles of various modes of CE
- *To learn to apply theoretical principles in order to develop a CE method to achieve a particular separation/analysis of compounds or mixtures of compounds
- *To improve written communication skills in scientific reading and data presentations

Tentative Lecture Content

Module III and Module IV

March 31	Lecture Notes (online lecture)	Capillary Ion Analysis (CIA aka. CIE) Buffer System, Detection Modes and Applications to Inorganic Cations and Anions
April 2	Lecture Notes Reference Book (online lecture)	Micellar Electrokinetic Chromatography (MEKC) Introduction (Concept of Surfactants and Micelles) MEKC, Mechanism of Separation, Capacity Factor, Elution Range In MEKC
April 7	Lecture Notes Reference book (on-line lecture)	MEKC Continued

Module V

April 9	Lecture Notes Reference book on-line lecture	Capillary Gel Electrophoresis (CGE) Mechanism of Separation, Theories of Migration of Macromolecules in Polymer Gels, Parameters affecting CGE separations, Applications
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April 10-12 (Multiple choice quiz 1 will be posted on-line and will cover lecture on CIA (module III) and MEKC (module IV), 7% of the course (There will be 90 minutes time limit with web camera for proctoring)

Module VI

April 14 Lecture Notes
Reference books Capillary Isoelectric Focusing (CIEF)
Concept of Isoelectric point, CIEF procedures
Types of Mobilization, Capillary isotachopheresis (CITP)

Module VII

April 16 Lecture Notes Chiral Capillary Electrophoresis (CCE)
Reference books Importance of Chirality, Chiral selectors, Principle and
Separation Mechanism, Migration order in CCE,
Applications

April 17-19 (Multiple choice quiz 2 will be posted on-line and will cover lecture on CGE (module V) and CIEF (module VI), 7% of the course (There will be 90 minutes time limit with web camera for proctoring))

Module VIII

April 21 Lecture Notes
Reference books CCE (contd) Capillary Electrochromatography (CEC)
on-line Fundamentals and Instrumentation in CEC
Mechanism of Separation, Buffer Systems, Applications

Module IX

April 23 Lecture Notes Capillary Electrophoresis-Mass Spectrometry,
Reference books CEC-MS, MEKC-MS, Capillary Array Electrophoresis
on-line

April 24-26 (Multiple choice quiz 3 will be posted on-line and will cover lecture on CCE (module VII) and CEC (module VIII), 7% of the course (There will be 90 minutes time limit with web camera for proctoring))

**Final Exam Tuesday May 5 at 1:30-4:00 P.M (Must be submitted by 5:30 pm)
Comprehensive on line +Module IX)**

REMAINING GRADING CRITERIA

UNDERGRADUATE(4015)

Past 2 Exams 20%
Short exams 21%
(3 quizzes on line, 7% each)
Laboratory reports 30% (3-4 reports)
Homeworks =2% remaining
Past on line quizzes =5%
Chat discussion board (4%)
Chat board discussion = 5% bonus
*Take home Final exam= 15%

*GRADUATE (6015)

Past 2 exams =20%
Short exams 21%
(3 quizzes online, 7% each
Lab reports = 30% (3-4 reports)
Homeworks= 2% remainig
Past on line quizzes =5%
Chat discussion board (4%)
Chat board discussion = 5% bonus
*Final exam (Take Home) = 15%

***Final exam will be 85% comprehensive and 15% will cover part of last module X. All take home final exam must be submitted via drop box. You can either type the answers or write with black ink pen for better legibility. Either send in as a word file after typing or scanning via phone (if written by hand) within four hours of the exam posted.**

***i* This is mandatory and will contribute to your course grade**

***Student can take at least two final exams within 24 hours. However, if a student has more than two exams please let me know in writing at least 7 days before the final to reschedule. No special administration of final exams will be made if the above rule is not followed**

GRADING SCALE: The grading scale may be curved, but the most probable breakdown will be:

95-100	A ⁺
90-94	A
85-89	A ⁻
80-84	B ⁺
75-79	B
70-74	B ⁻
65-69	C ⁺
60-64	C
55-59	C ⁻
50-54	D ⁺
45-49	D
40-44	D ⁻
below 40	F

PLEASE READ THE IMPORTANT POLICIES AND PROCEDURES:

1. **No makeup exams will be given** (unless the situation is such that the whole class did poorly in the exam).
2. If a student misses one exam **without a legitimate excuse**, s(he) will receive a grade zero for that exam.

3. If a student misses one exam **with a legitimate excuse**, s(he) can either choose to receive a grade of zero for that exam or apply the grade to the final exam.
4. If you miss exam IV there (with or without legitimate excuse) you will receive grade zero on that exam

*Legitimate reasons for excuse are the following:

Cause	Required
Due to illness	illness note from the doctor
Due to business	business note from the supervisor
Death in family	note of death from a family member
Other	On a case by case basis

* I must be informed **before the exam** to count as an excused absence. If you cannot reach me, leave a message on my answering machine at my office (Indicate the time and the day), or notify the departmental receptionist (Indicate the time and the day).

Please note that notifying me after the exam will result in a grade of zero for that exam.

5. Although I do not expect cheating in my classroom, the penalty is an **F for the course**. Plagiarism is also considered cheating, therefore, copying large sections of another author's material without paraphrasing and referencing it will result in grade F.
6. Attendance will be taken regularly. I strongly urge to attend class. Otherwise you may miss the pop quizzes and lecture part (that may not be there in your textbook).
7. Although I will try to maintain the class schedule and objectives, I may need to make adjustments.
6. You may audio tape my lectures.