Course Title: Chemical Reaction Kinetics and Reactor Design
Course Prefix: CHEG Course No.: 3063 Section No.: P01

Department of | Chemical Engineering | College of | Engineering

Instructor Name:	***Dr. Jorge Gabitto***
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Office Hours:	**MWR 10:00 AM - 1:50 PM**
Virtual Office Hours:	**None**
Course Location:	***New Electrical Engr. Bldg. room 137***
Class Meeting Days & Times:	**MW 2:00 – 3:20 PM**
Catalog Description:	**(3-0) Credit 3 semester hours.** Application of fundamental concepts of reaction stoichiometry, chemical and biochemical kinetics, and equilibria to the interpretation of reaction rate data. Application of reaction rate and heat and mass transfer correlations to the design of batch reactors, continuous staged reactors, and tubular reactors**.**
Prerequisite:	**MATH 2043, CHEG 2013**
Co-requisites:	**CHEG 3053**
Required Text:	**None**
Recommended Text/Readings:	1. Fogler, H. S., Essentials of Chemical Reaction Engineering, Prentice-Hall, 2012 (1st Edition or later). 2. Fogler, H. S., Elements of Chemical Reaction Engineering, Prentice-Hall, 2009 (4th Edition or earlier).
Access to Learning Resources:	PVAMU Library: phone: (936) 261-1500; web: http://www.tamu.edu/pvamu/library/ University Bookstore: phone: (936) 261-1990; web: https://www.bkstr.com/Home/10001-10734-1?demoKey=d

Course Goals or Overview:

The goals of this course are:
1). Analyze chemical rate data.
2). Design ideal reactors.
3). Learn basic concepts of real reactors operation and design .

Course Outcomes/Objectives
At the end of this course, the student will have achieved and demonstrated the following outcomes.

1	An ability to calculate rate equations from experimental data.
2	An ability to analyze, formulate and solve problems in reaction engineering.
3	An ability to design chemical reactors.
4	An ability to formulate complex reaction mechanisms.

Course Requirements & Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course. The course has been designed to ensure that students acquire a solid grounding in ABET 2000 outcomes a and e.

Computer Assignments – self-explanatory assignments. .
Homework Exercises – written assignments, often in letter report format, designed to supplement and reinforce course material.
Quizzes – announced or surprise in-class assignments to promote student accountability
Partial Tests – the objective is determining concept development and problem-solving skills. .
Final Examination – Comprehensive final exam.

Grading Matrix *(points will vary according to instructor's grading system)*

Instrument	**Total**
Homework, Computer Assignments & Quizzes	30%
Partial Exams.	40%
Final Exam	30%
Total	**100%**

Grade Determination:
A = 100 – 89pts;
B = 88 – 79pts;
C = 78 – 60pts;
D = 60 – 50pts;
F = 49pts or below

Course Procedures

Textbook Policy
Students must acquire the textbook that is listed as "required" on the course syllabus. The textbook must be acquired by the 10th class day. Students are not allowed to share textbooks with other students who are currently registered in the same class. Failure to acquire (or show proof of purchase) the required textbook by the 10th class day will result in the student being administratively dropped from the course. The University will assess financial obligations for the course to the student as with any other dropped class

according to the fee schedule. In addition, your financial aid may be affected by the subsequent registration action(s).
Go to http://www.pvamu.edu/pages/195.asp for the Roy G. Perry College of Engineering Textbook Policy.

Conduct:

1. Students will conduct themselves in a manner that is respectful to their fellow classmates and the instructor at all times.
2. **Cell phones MUST** be turned off during class time. Students are **NOT** allowed to leave class to answer cell phones. **Cell phones** are **NOT** allowed **AT ALL** during exams/quizzes.
3. Students are **NOT** allowed to wear caps/hats in class
4. Arrive to class prepared to discuss lesson.
5. Always bring essential tools: Textbook, paper, calculator.

Submission of Assignments:

- All assignments are due by default one week after being given, unless otherwise stated.

All homework assignments are due directly to the Instructor, prior to the start of class or the assignment will not be accepted. All homework assignments and exams should be written on one side of the page only, and should use the appropriate cover sheet, with the name, assignment title and date. All pages should be numbered. Failure to use the correct format will result in the assignment grade being reduced by 20%.

Exam Policy

Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook).

TOPICS

Topic 1	Introduction (2 classes)
Topic 2	Determination of reaction rate expressions. (5 classes)
Topic 3	Single and Multiple isothermal reactors. (9 classes)
Topic 4	Selectivity and optimization aspects in design of isothermal reactors (9 classes)
Topic 5	Temperature and energy effects in reactors (7 classes)
Topic 6	Heterogeneous catalysis. (3 classes)
	Tests. (4 classes)

University Rules and Procedures

Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.

2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.

3. Fabrication: use of invented information or falsified research.

4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)
The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):
Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:
Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process
Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.