TO: The Engineering Faculty

FROM: The Davidson School of Chemical Engineering

RE: New graduate course – CHE 60000 **Approaches to Chemical Engineering Research**

The faculty of the Davidson School of Chemical Engineering have approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

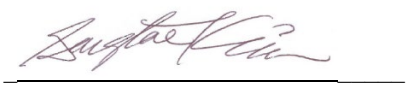
COURSE:
CHE 60000 **Approaches to Chemical Engineering Research** Spring, Lecture, Cr. 3
Restrictions:
May not be enrolled as the following Classifications:

Freshman: 0 - 14 hours
Freshman: 15 - 29 hours
Sophomore: 30 - 44 hours
Sophomore: 45 - 59 hours
Junior: 60 - 74 hours
Junior: 75 - 89 hours
Senior: 90 – 104
Senior: 105+

Prerequisites:
Prior biology, physics (mechanics) and calculus classes (or permission from the instructor)

DESCRIPTION:
This course is designed to prepare and enable students to make a rapid start on their research. Additionally, key skills in critical analysis of the literature, technical writing and delivery of oral presentations are included.

Reason: This course has been taught successfully as a temporary course and it is now being submitted for a permanent course number.



Head of CHE

Course: ChE 697: Approaches to Graduate Research in Chemical Engineering

Instructors: John A. Morgan jamorgan@purdue.edu Office: 1053 FRNY

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Motivation for the course:

This course is designed to prepare and enable students to make a rapid start on their research. Additionally, key skills in critical analysis of the literature, technical writing and delivery of oral presentations are included.

Expected outcomes:

Upon completion of this course, students should be able to:

1) Search the scientific literature efficiently
2) Critically review the literature
3) Write for scientific publication
4) Generate scientific hypotheses or engineering problem statements and propose how to test them
5) Make effective technical oral presentations
6) Understand keys to successful grant writing

Suggested text:

An Introduction to Scientific Research, E. Bright Wilson, Jr., Dover Publications, Inc. New York, 1990

Supplement for laboratory researchers:

At the Bench, A Laboratory Navigator, Kathy Barker, Cold Spring Harbor Laboratory Press, New York, 2005

Course Logistics:

The content accompanying lectures will be posted on Brightspace under CHE697-075 LEC

Monday and Wednesday will be lectures that will be on zoom or webex. The lectures will be recorded, but are best watched live.

The first Friday, January 22nd, is a required all student session (online). The next Fridays are office hours with the class divided by recitation (REC) section.

February 17th- Reading Day: No class

The last 3 weeks of class (MWF) are reserved for student oral presentations.

Course Outline:

Week 1: Introduction to course and overview of assignments

Week 2: Literature search- Introduction to scientific databases

e.g. Web of Knowledge, Scifinder Scholar, PubMed, Chemical structure search

Week 3: Qualifier overview and rubrics

Week 4: Critical evaluation of the primary literature

Week 5: Laboratory Notebooks
Week 6: Experimental design principles
Week 7: Creativity
Week 8-9: Scientific Communications

Writing

Abstracts, Figures, Tables, Reference tools, Reviews, journal articles, proposals

Oral presentations

Posters

Week 10-12 No class- Student to work on Literature Review
Week 13-15- Oral Presentations

Assignments: (% of final grade in parenthesis)

1) Homework assignments (20%)
2) Critical analysis of a published article (10%)
3) Conduct a Literature review in student's own research area; select papers and provide a written critical summary (40%)
4) Write a short proposal related to a single hypothesis (10%)
5) Oral presentation (20%)

All projects are to be done individually. No late work will be accepted.

Academic dishonesty ***will not be tolerated*** in any form in this course. Specifically, Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Section B-2-a, Code of Student Conduct] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972] **All incidents of academic dishonesty will be reported to the Dean of Students. Such incidents include: (i) claiming credit for work that is not your own original work; and (ii) enabling other students to create work that is not their original work. The punishment for the first offense is a grade of zero for the entire work, and the punishment for a second offense is an F mark for the class.**

The following grading scale is guaranteed but may be modified based on relative student performance:

A+ 98%-100%	C 74-76%
A 94-97%	C- 70-73%
A- 90-93%	D+ 67-69%
B+ 87-89%	D 64-66%
B 84-86%	D- 60-63%
B- 80-83%	F <60%
C+ 77-79%	