Chemistry Department
Chem 270,
“Advanced Chemistry: Catalysis”
Fall 2016

Contact Information
Instructor: Dr. Shreeyukta Singh
Office Location: DH 517
Telephone: 408-924-4954
Email: shreeyukta.singh@sjsu.edu (preferred means of contact)

Class Days/Time: Th, 18:00-19:40
Office Hours: Wed: 17.30-19.30
Classroom: DH 415

Prerequisites: Completion of one undergraduate course in biochemistry and one undergraduate course in physical chemistry, or permission by instructor.

eCampus Course Page
Course materials such as pdf articles, handouts, and updates to this greensheet may be obtained by logging into Canvas at http://www.sjsu.edu/at/ec/canvas/index.html.

Course Description
A graduate level “introductory” course on Catalysis and their applications in medicine and energy related advancement. Topics will include basic theory of catalysis, type of catalysts and their importance. Peer reviewed journals will be discussed to learn about importance and need of catalysts.

Course Goals and Learning Objectives

Program Learning Outcomes (PLO)
PLO’s for the MS or MA degree in Chemistry may be found at the following URL:
http://www.sjsu.edu/chemistry/Academic_Programs/graduate_program_learning_objectives.html

Course Learning Outcomes (CLO)
(1) Knowledge about catalysis and synthesis of catalysts. (2) How to choose a catalyst for any specific application. (3) To read and critique multiple journal articles from the scientific literature; (4) To improve written and verbal communication skills.

Suggested Textbook
There is no official textbook for the course. I will suggest reference books and journal articles through the course of the semester and will post relevant material on Canvas.

Course Requirements
NOTE that University policy F69-24 at http://www.sjsu.edu/senate/docs/F69-24.pdf states that “Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading.”

Miscellaneous Assignments
Miscellaneous homework assignments, worksheet summaries for 8 of the assigned journal articles, intermediate steps in term paper preparation, and 3 peer evaluations of oral presentations. There will be a 20% deduction for any late assignment.

Term Paper
Term papers will review a specific choice of catalyst, their characterization technique as selected by the student and approved by the instructor. Topics that differ from the class material are highly encouraged, but not required. Details for writing the term paper will
be discussed in class. Writing expectations and grading criteria will be issued to each student in the form of a table near the beginning of the semester.

**Oral Presentation**
The oral presentations will elaborate on the methods and results of a single journal article published within the last 3 years. The article should be referenced in the term paper and approved by the instructor. The length of the oral presentation should be 15-20 minutes with 5 minutes for questions and class discussion. Each presentation will be critiqued by one or more classmates in addition to the instructor. The final exam will include questions taken from material covered in the oral presentations, so all students should be active listeners.

**Exams**
The midterm and final exams will be taken in class. THERE ARE NO MAKE-UP EXAMS. The final exam must be taken to pass the course. Any form of cheating is a serious violation of SJSU’s Academic Integrity Policy (see below). A student caught cheating on an exam will receive a zero score and may be subject to further administrative sanctions, including probation, suspension, or expulsion. No one may leave the room during an exam (except for unforeseen emergency). No one may answer a phone call during an exam. If you suspect that someone is copying off of you during an exam, please ask the instructor to be moved to a different seat immediately.

**Grading Policy and Criteria**
Letter grades will follow a traditional system, the top 3% earning a plus grade and the bottom 3% earning a minus grade within each decade: 93.0-100% (A), 90.0-92.9% (A-), 87.0-89.9% (B+), 83.0-86.9% (B), 80.0-82.9% (B-), etc. The instructor reserves the right to change the grading curve at the end of the semester if he/she deems it to be appropriate.

Article summaries 100 (Best 5 out of 8)
Midterm exam 75
Oral presentation 50
Term Paper 175
Final Exam 100
Total 500 points

**University Policies**
Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs’ Syllabus Information web page at [http://www.sjsu.edu/gup/syllabusinfo/](http://www.sjsu.edu/gup/syllabusinfo/)
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<tr>
<th>Week</th>
<th>Date</th>
<th>Topic, Readings, Assignments Deadlines</th>
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<td>1</td>
<td>Aug 25</td>
<td>Overview of course, Basics of Catalysis and Mechanism and Kinetics</td>
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<tr>
<td>2</td>
<td>Sep 01</td>
<td>Role of Catalysis in Energy and Medicine related advancement</td>
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<td>3</td>
<td>Sep 08</td>
<td>Catalysis in Energy : Review Article 1</td>
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<td>Sep 15</td>
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<td>6</td>
<td>Sep 29</td>
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<td>Oct 06</td>
<td>Catalysis in Energy : Review Article 4</td>
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<td>Catalysis in Energy : Review Article 5</td>
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<td>Oral Presentation: Peer Review</td>
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<td>Dec 16</td>
<td>Finals  18.00-19.40PM</td>
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