

# engineering

SAN JOSE STATE UNIVERSITY



Charles W. Davidson  
College of Engineering

One Washington Square  
San José, CA 95192-0080  
[www.engr.sjsu.edu](http://www.engr.sjsu.edu)

## ChE/MatE New Graduate Student Orientation

Dr. Craig England

Dr. Melanie McNeil

August 15, 2019



San José State  
UNIVERSITY

# Outline

- Introductions
- Department Resources
- Graduate Advising
- Curriculum
- Graduation Requirements
- Other Important Information

# CME Department Faculty/Staff

Dr. Richard Chung (MatE),  
Department Chair

Dr. Melanie McNeil (ChE),  
Graduate Coordinator

Dr. Craig England (MatE),  
Graduate Advisor

Debi Fennern,  
Administrative Support  
Coordinator

Dr. Stacy Gleixner (MatE)

Dr. Özgür Keles (MatE)

Dr. Claire Komives (ChE)

Dr. Dahyun Oh (MatE)

Dr. Katy Kao (ChE)

Dr. Santosh KC (MatE)

Dr. Anand Ramasubramanian (ChE)

Dr. Liat Rosenfeld (ChE)

Dr. David Wagner (ChE)

*Also several adjunct faculty/lecturers*

# Department Email List

- Subscribe to CME Graduates Google Group:  
<http://www.sjsu.edu/cme/students/google-groups/>
- Email messages to this group is the primary means of communicating the following information to CME graduate students:
  - Advising Information
  - Events (Guest Speakers, Job Fairs, Meetings)
  - Student Club Activities
  - Internships/Scholarships

# Graduate Student Introductions

- Name
- B.S. degree major/university
- M.S. program (ChE or MatE)

# CME Faculty Research Presentations

- Dr. Katy Kao
- Dr. David Wagner
- Dr. Santos KC
- Dr. Anand Ramasubramanian
- Dr. Melanie McNeil

# Computational Materials Design

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## Dr. Santosh KC

Assistant Professor  
Materials Engineering, (Room # E379)  
Charles W. Davidson College of Engineering  
San Jose State University, San Jose, California  
E-mail: [santosh.khatrichhetri@sjsu.edu](mailto:santosh.khatrichhetri@sjsu.edu)

# Electronic Devices and Battery

Electronic and other Devices



Energy Storage: Battery



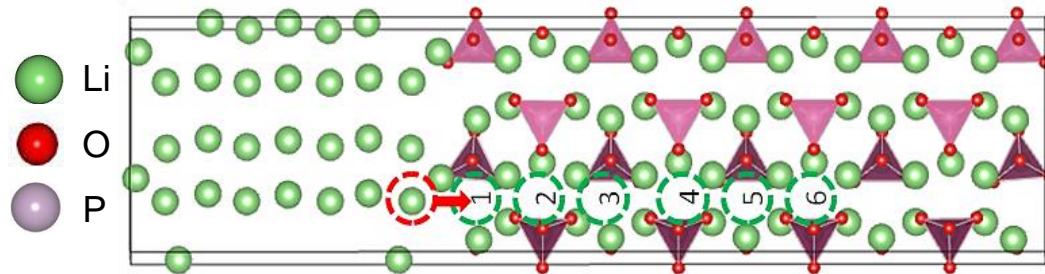
Need to understand the materials properties at the atomic level

# Designing Materials for Applications

## Li-ion Battery

- Safer

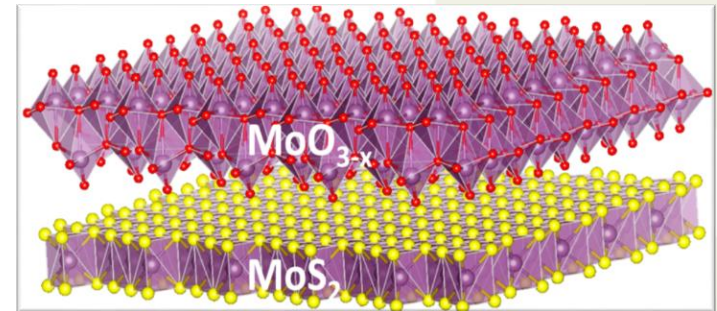
### All Solid-State Battery



Li- ion migration in battery

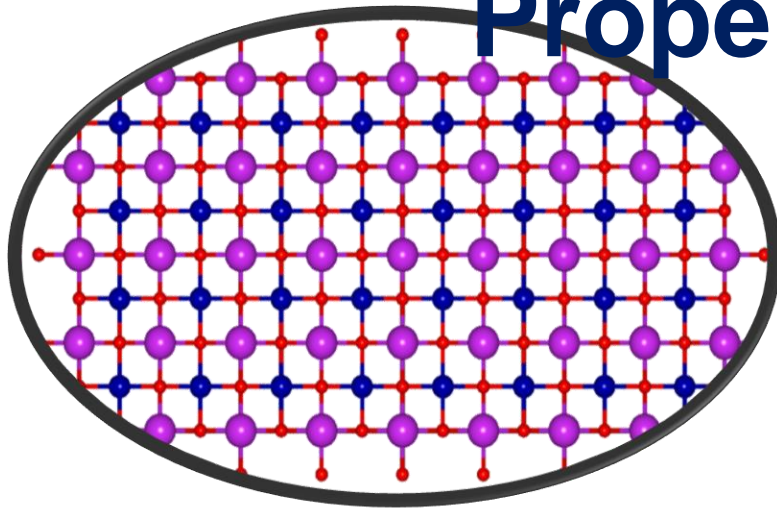
## Micro-Electronics

- Thinner and Faster



Interface between oxides and semiconductor

# Designing Materials for Tuned Properties



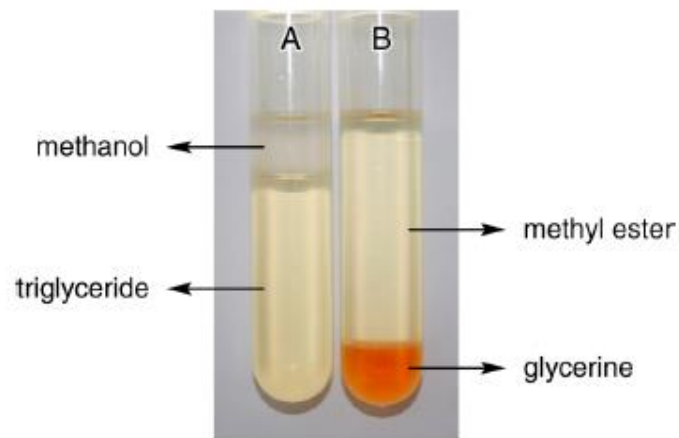
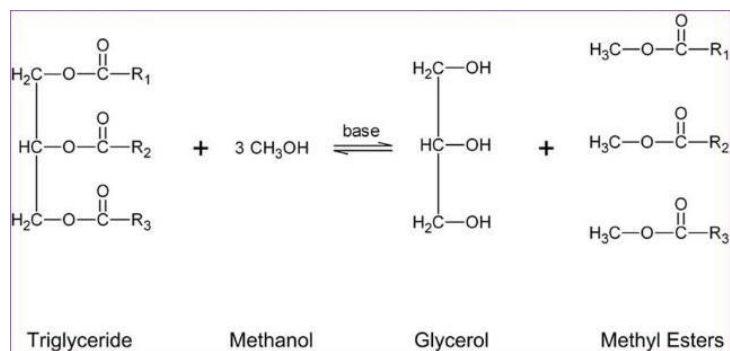
## Tuned Properties

- Electronic
- Optical
- Magnetic
- Transport
- Mechanical

Computational algorithms and high-performance computing resources



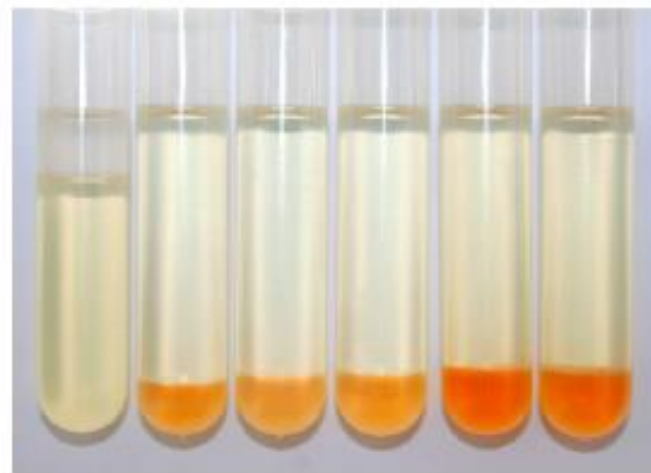
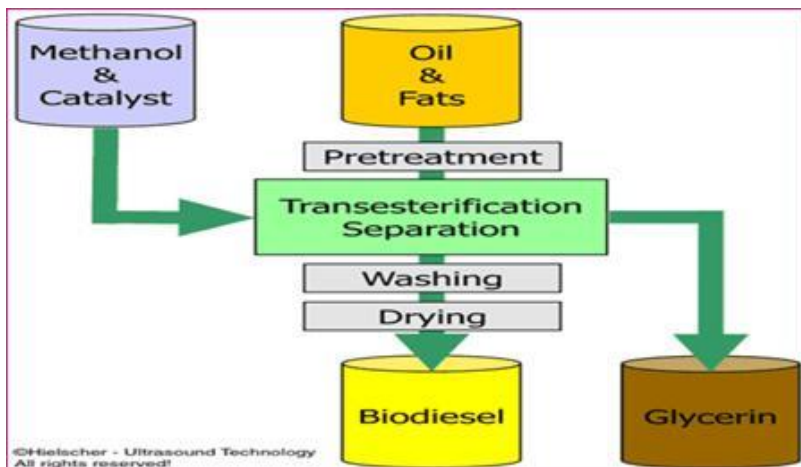
## Biodiesel Reaction



Transesterification of vegetable oil and methanol for biodiesel synthesis:

(A) before reaction and (B) after reaction.

[dx.doi.org/10.1021/ed400210r](https://doi.org/10.1021/ed400210r) | J. Chem. Educ. 2013, 90, 1362–1364



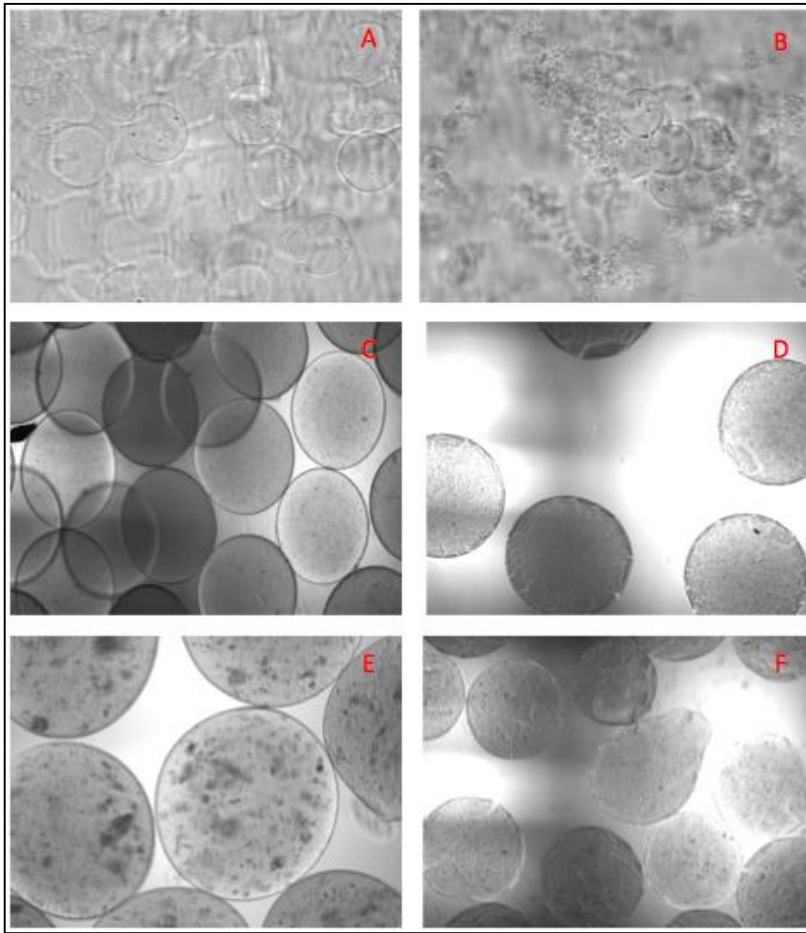
Effect of the catalyst amount (from left to right: 0, 0.3, 0.5, 0.6, 0.8, 1.0 wt %).

[dx.doi.org/10.1021/ed400210r](https://doi.org/10.1021/ed400210r) | J. Chem. Educ. 2013, 90, 1362–1364

## Effect of artificial cell miniaturization on urea degradation by immobilized *E. coli* DH5 $\alpha$ (pKAU17)

Duque, Ricardo ; Shan, Yiming ; Joya, Monica ;  
Ravichandran, Nandini ; Asi, Berok ; Mobed-  
Miremadi, Maryam ; Mulrooney, Scott ; McNeil,  
Melanie ; Prakash, Satya

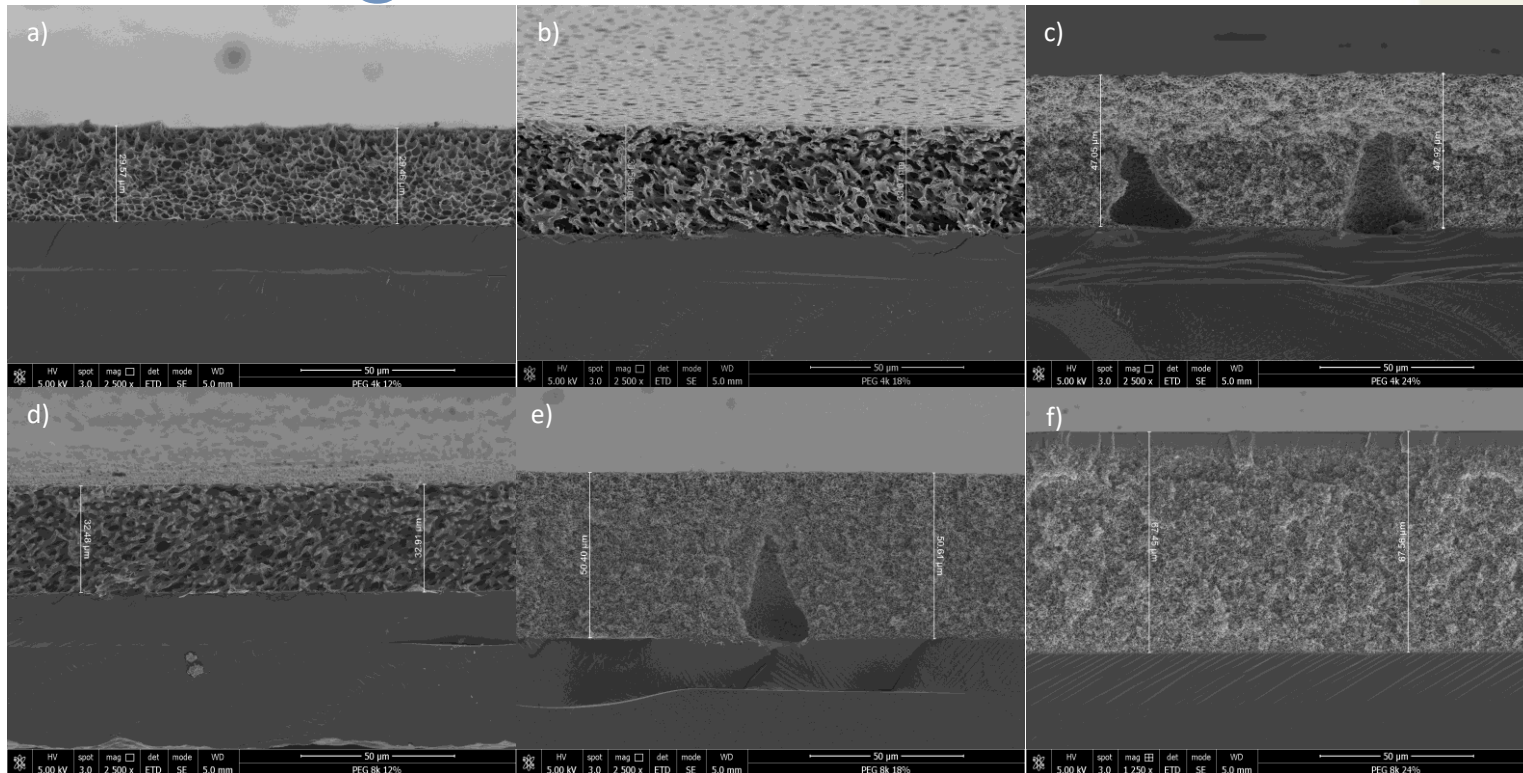
Artificial Cells, Nanomedicine, and Biotechnology, 28  
June 2018, p.1-10



**Figure 4.** Micrograph images of immobilized *E. coli* DH5  $\alpha$  (pKAU17) in reaction media at 37°C at the onset and after 1 h of incubation. (A) (MI)s at  $t=0$ . (B) (MI)s at  $t=1$  h. (C) (MA)s at  $t=0$ . (D) (MA)s at  $t=1$  h. (E) (DDMI)s at  $t=0$ . (F) (DDMI)s at  $t=1$  h. Red arrows indicate local membrane degradation.

# Water Purification Membranes

Karen Ramirez, Chaitanya Puligundla, Melanie McNeil



**FIG 9: Membranes Cross-sectional area SEM Image**

a) PEG 4k 12%, b) PEG 4k 18%, c) PEG 4k 24%,

# CME Student Clubs

- The department has four student clubs  
<http://www.sjsu.edu/cme/students/bcme-student-clubs/index.html>
  - American Institute of Chemical Engineers (AIChE)
  - International Society for Pharmaceutical Engineers (ISPE)
  - Materials Advantage: student chapter for four materials engineering organizations (ACerS, AIST, ASM, TMS)
  - Society of Plastic Engineers (SPE)

# Graduate Advising Resources

- CME Graduate Advising Webpage  
<http://www.sjsu.edu/cme/students/graduate-advising/index.html>
  - Graduate Advising Forms
  - Graduate Advisors
  - Information
- COE Graduate Student Advisor: Marta Ramirez-Rodenas  
<https://engineering.sjsu.edu/gess>

# Semester Advising Timeline

- Advising email message sent to ChE/MatE graduate students (**CME-Grad Google Group**) by graduate advisor with instructions
- Submission of **updated** advising form to graduate advisor for review during the designated semester advising period.
  - Each 3-unit graduate course requires about 10 hours of work per week outside of class.
- Update and approval of advising form by graduate advisor
- Removal of registration hold by graduate advisor
- Failure to submit your advising form on time can delay your registration and result in late registration fee and possible course cancellations.

# MS ChE Curriculum Plan

- Core Courses (12 units)
- GVAR Course (3 units)
- Technical Electives (9 units)
- Option A (Thesis)
  - MS Thesis/Project Preparation Seminar (1 unit)
  - MS Project (2 units)
  - MS Thesis (3 units) then CHE 1290R
- Option B (Project)
  - ME 230 or 273 (3 units)
  - MS Thesis/Project Preparation Seminar (1 unit)
  - MS Project (2 units) then CHE 1290R

# MS MatE Curriculum Plan

- Core Courses (15 units)
- GVAR Course (3 units)
- Option A (Thesis)
  - Technical Electives (6 units)
  - MS Thesis/Project Preparation Seminar (1 unit)
  - MS Project (2 units)
  - MS Thesis (3 units) then MatE 1290R
- Option B (Project)
  - Technical Electives (9 units)
  - MS Thesis/Project Preparation Seminar (1 unit)
  - MS Project (2 units) then MatE 1290R

# CME Courses

- Graduate students must
  - maintain a GPA  $\geq 3.0$  for all 100-level and 200-level courses taken at SJSU as well as for all 30 units in the curriculum plan
  - receive a C or better in each course in their curriculum plan
- A tentative schedule of ChE/MatE graduate courses can be found at <http://www.sjsu.edu/cme/students/graduate-advising/courseschedule/>

# Probation and DQ

- If your GPA drops below 3.0, you will be placed on academic probation.
- You will remain on probation until your GPA is above 3.0.
  - Each semester you are on probation, your semester GPA must be better than 3.0 or you will be disqualified from SJSU Graduate School
- The CME department does not offer programs of study. If you go on probation, you should consider switching to a different program. You can only be admitted to a different program if you are not DQ'd.
- A second DQ is terminal for all SJSU MS students

# Academic Integrity Policy

- Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the University's Academic Integrity Policy, requires you to be honest in all your academic coursework. Faculty members are **required** to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at <http://www.sjsu.edu/studentconduct/policies/>
- The CME department has a zero-tolerance policy for plagiarism. All work must be written in your own words and properly cited.

# Degree Timeline

1. Obtain “Classified” status in Master’s program
2. Satisfy GVAR
3. Submit candidacy form to graduate advisor after completing at least 9 units of your MS Curriculum
4. Defend research proposal in ChE/MatE 281
5. Complete MS coursework with  $GPA \geq 3.0$  and no grade less than a C
6. Submit Application for Award of Master's Degree
7. Defend final thesis/project report after taking ChE/MatE 298/299 and possibly ChE/MatE 1290R
8. Submission of culminating memo to GAPE by graduate advisor
9. Submit thesis to College of Graduate Studies

# Conditionally Classified Status

- Many of you were admitted with “Conditionally Classified” status in your Master’s program
- You must satisfy conditions of admission to remain in the ChE or MatE Master’s program
  - Minimum letter grades in your first semester courses
  - Complete required ChE or MatE transition courses, which do not count towards the 30 units in the MS program  
<http://www.sjsu.edu/cme/programs/academic-policies/graduate-transition-courses/>
- If you do not meet the conditions, you may not be able to complete the MS program in ChE or MatE.
- When you meet the conditions, you must submit a [Change of Classification](#) form to your graduate advisor to obtain “Classified” status in your Master’s program

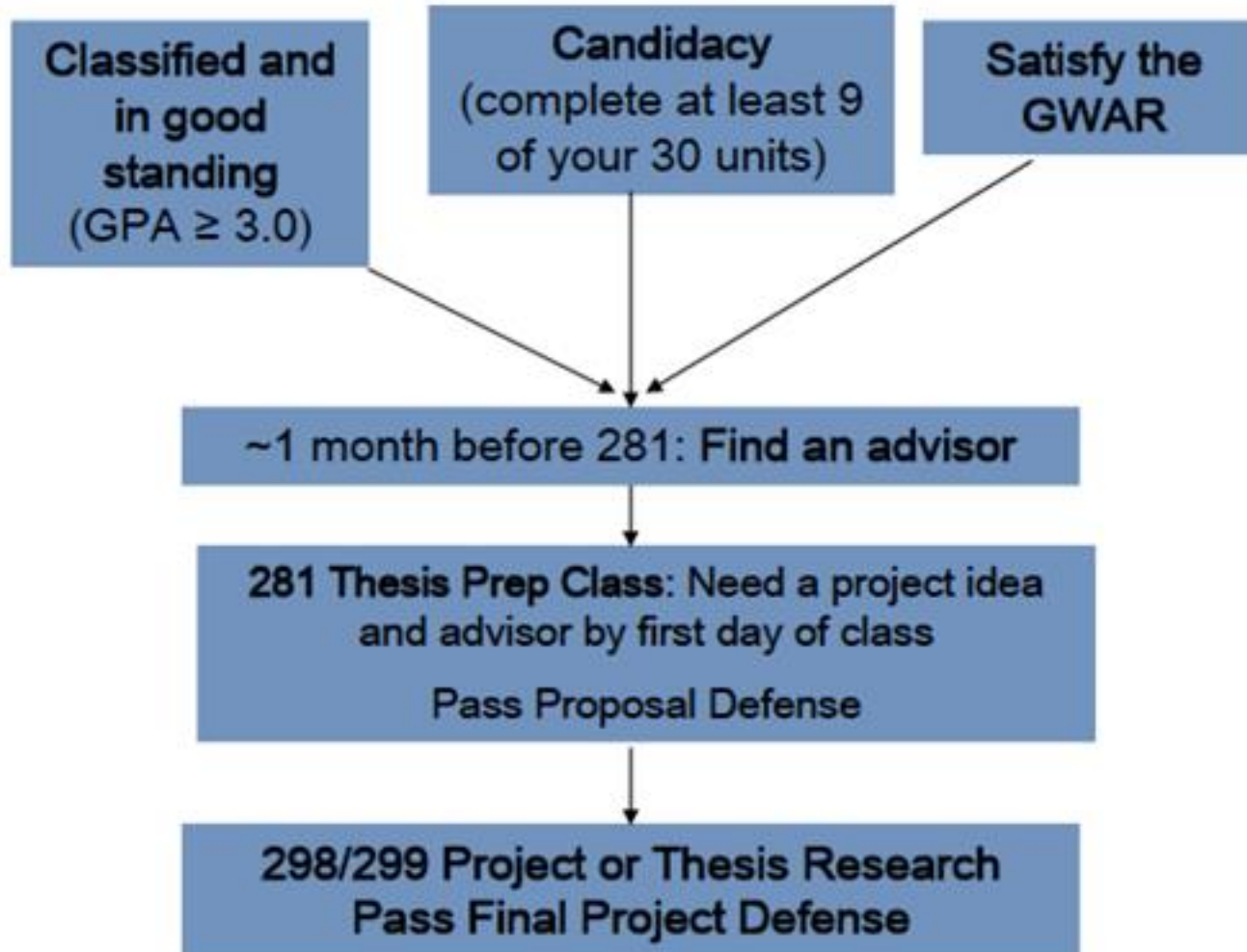
# Candidacy Form

- The [Petition for Advancement to Graduate Candidacy](#) lists all 30 units of the courses that you will take to complete the Master's program.
- The completed candidacy form is emailed to the ChE/MatE graduate advisor for approval after you
  - obtain “Classified” standing
  - satisfy GWAR
  - have completed 9 units of **MS coursework** with a GPA  $\geq 3.0$  (transition course do not count)
- [Course substitution forms](#) are used to change the 30 units if needed.

# Thesis/Project

- All ChE/MatE graduate students are required to do a thesis or project resulting in a formal written report with an oral defense to their Reading Committee (ChE/MatE 281→ChE/MatE 298/299).
- A thesis typically involves more detailed research and analysis. The thesis is reviewed by the Office of Graduate Studies and Research and published by the University.
- Students must be invited by a tenure track CME faculty member to do a thesis. Most students do a project.

# Route to Project/Thesis



# Fall 2019 Important Dates

- Aug. 21: First day of instruction; Add/drop period begins
- Sept. 2: No classes, SJSU closed - Labor Day
- Sept. 3: Last day to drop courses
- Sept 10: Last day to add classes& register late
- Late Oct: Winter & Spring 2020 enrollment appointments posted on MySJSU
- Nov. 11: No classes, SJSU closed - Veterans Day
- Nov. 27: No classes, SJSU open
- Nov. 28/29: No classes, SJSU closed – Thanksgiving
- Dec. 9: Last day of instruction
- Dec. 11-12, 16-17: Final exams
- Dec. 20: End of Fall Semester

# Internship/TA Opportunities

- The Career Center <http://www.sjsu.edu/careercenter/> provides tools to help you find job and internships.
- Frequent announcement of internship opportunities are sent to the CME Graduate Google Group.
- Every semester, the CME department has limited number teaching associate (TA) positions.

# Student ID (Tower) Card

- Student ID cards are issued at the Tower Card windows in the Bursar's Office located in the Student Services Center.

<http://www.sjsu.edu/bursar/services/towercard/>

# SmartPass Clipper Card

- The Associated Student provides students a SmartPass Clipper Card for \$3 <http://www.sjsu.edu/as/departments/ts/smartpass/index.html>. The Clipper Card provides unlimited rides on Santa Clara Valley Transportation Authority (VTA) Local & Rapid buses, Limited routes, and Light Rail lines.

# Other Resources (1)

- International Student and Scholar Services:  
<http://www.sjsu.edu/iss/>
  - International Students MUST sign up with ISSS, Student Union West (CIES)
- Writing Resources
  - Engr 90W: a writing workshop course you can register for to get extra assistance on your writing
  - Writing Center in Clark Hall: drop-in assistance on your writing: <http://www.sjsu.edu/writingcenter>
- Dr. MLK Jr Library: <http://library.sjsu.edu/>
  - Joint University/City Library
  - Online Search & Interlibrary Loan Services
  - Anamika Megwalu, CME research librarian

## Other Resources (2)

- Counseling Services: <http://www.sjsu.edu/counseling/>
  - SJSU offers free, drop-in counseling services for a range of issues including study skills, handling stress, adjusting to a new place, etc
- Health Center: <http://www.sjsu.edu/studenthealth/>
  - SJSU provides free health care for enrolled students with appointments, drop-in, workshops, and vaccination clinics
- Student Union/Event Center/Recreation Facilities: <http://www.sjsu.edu/studentunion/>
- Parking: <http://www.sjsu.edu/parking/>