Welcome!

1st Year Ph.D. Student Orientation
Fall 2018
Professor Charles Roth
Agenda

- Introductions
- Curriculum
- Adviser selection
  - Time to review
- Ph.D. Qualifying Examination
- Academic integrity
- Support
- Math assessment
- Appointments (TA/GA/Fellow)
- Payroll
- Course registration
Course Requirements

• 30 credits coursework
  – 5 core courses
    • Analy Methods (Engineering math)
    • Adv Transport I (Fluids)
    • Adv Thermo
    • Adv Transport II (Mass transport)
    • Kinetics and Reactor Design
  – 5 electives
    • Generally, any technical course that helps your research or is of interest
    • Could take 5 Pharm. Eng. Electives (Pharm. Eng. Option)
    • Encouraged to take 1 “broadening” elective, e.g. life science elective, entrepreneurship, etc.

• Developmental courses
  – 155:605 Teaching in Engineering Curriculum (Spring ‘19)
  – 155:601/602 Graduate Seminar (at least 4x)

• 24 credits research
• 72 total credits (so research usually > 24)
• 72 credits of coursework as described
  – Must maintain 3.0 GPA overall with no more than 1 grade less than B in core courses
• Teaching requirement (Instructional Assistant)
  – During 1st-2nd year, generally assist with two classes
  – May or may not be appointed as a TA during this time
• PhD qualifying examination
  – Typically end of first year (when core courses complete)
• PhD proposal and defense
  – End of second year
• Dissertation and defense
  – Hopefully within 5 years
Advisor Selection

• You need a PhD advisor to support your studies, both in terms of funding you and providing an intellectual climate and facilities for your research.

• Pizza with Professors
  – Tuesdays/Fridays, 12:00-1:20, C-115.

• Lab Open House (Sandwiches with Students)
  – Time/date to be announced

• Go talk to faculty and their students!

• Advisor selection choices due by end of November

• In the end, it is your responsibility to find an advisor. This is the most important assignment of the year!
Faculty Research Areas

Energy

Asefa, Chundawat, Celik, Tsilomelekis, Zhang

Pharmaceutical Science and Engineering

Glasser, Ierapetritou, Muzzio, Ramachandran, Tomassone

Biotechnology & Bioengineering

Androulakis, Buettner, Chundawat, Moghe, Pedersen, Roth, Schuster, Zhang

Process Systems & Reaction Engineering

Androulakis, Celik, Ierapetritou, Ramachandran

Materials

Asefa, Chiew, Dutt, Hara, Neimark, Shapley, Tomassone

CONTROL (DOTAP/ODN)
Rational design of molecular assembly to engineer cells

Schuster et al, *Nat. Comm.* 2018
## Fall 2018 CBE Pizza with Professors Research Talks

**Conference Room C-115**

* Required for Incoming PhD and MS Thesis *

### September 2018

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### October 2018

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<td>Zhang</td>
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Research Rights and Responsibilities

• GA and TA appointment language (15 h)
  – excluding work associated with academic progress toward the degree

• Outside employment
  – Not allowed

• Advisor/student communication

• Time to review guidelines
  – Advisors and students need to be responsive to each other
PhD Qualifying Exam

- Eligibility based on completion of and performance in core courses
- Given last week in May
- Students given a choice of papers to review one
  - 15 minute presentation
  - 15 minutes questions
- Big picture: what is the paper about, why did they do this, are their conclusions justified, what could they have done better, what are the next steps?
- Fundamentals: equations and assumptions
- Bridge to skills needed in research
- Pass/Conditional Pass/Fail
PhD Proposal

• Formal written proposal of what your research will entail
• Need to justify plan with references from literature
• Preliminary data needed
• Also presentation (~30 minutes)
  – Questions from audience and committee
• Committee is faculty from CBE and perhaps outside member
• Pass/(Conditional Pass)/Fail
Dissertation

• A PhD must culminate in a dissertation
• Detailed, cohesive story of what you have accomplished and how it pushes the field forward
• Written dissertation plus presentation
• Again, committee is faculty from CBE and outside member
Graduate Students May Never:

• Quote or paraphrase without complete citations;
• Cite a source that has been identified through a secondary source but has not been consulted;
• Copy from the internet;
• Collaborate with others without explicit permission from instructor;
• Use unauthorized materials during an examination or on an assignment;
• Look at or copy the work of another student during an exam;
• Submit the work completed in one class to fulfill the requirements of a second class without the consent of the instructor.
Sanctions for a given violation may be imposed differently on those with more or with less experience as students. Thus violations of academic integrity by graduate students will normally be penalized more severely than the same violations by inexperienced undergraduate students. In particular, violations that would be considered nonseparable for an undergraduate student may be treated as separable for a graduate student.”

Consequences
• Disciplinary Probation
• Failure in the course
• Loss of Financial Support
• Suspension of Student Status
• Removal from Rutgers
Graduate Students as Researchers must adhere to the ethical codes of their discipline/profession and cannot:

- Falsify/fabicate or selectively withhold data or results;
- Misuse or appropriate the data of others;
- Present data in a sloppy or deceptive manner;
- Fail to maintain accurate laboratory notebooks;
- Fail to credit all authors and contributors appropriately;
- Sabotage/appropriate the research of another;
- Misuse research funds or institutional property for personal use;
- Develop inappropriate relationships for personal gain;
- Fail to comply with Federal Guidelines for the treatment of human or animal subjects.
Support at Rutgers

• Graduate Program Administrative Assistant
  – Lynn DeCaprio, lynny@rci.rutgers.edu, 5-2228

• Graduate Program Director
  – Charlie Roth, cmroth@rutgers.edu, 5-6686

• Graduate School-New Brunswick staff
  – Associate Dean Barbara Bender, bbender@rutgers.edu, 2-7747

• CAPS: Rutgers Counseling, ADAP (alcohol and other drug assistance program) and Psychiatric Services
  – Contact tel:732-932-7884
Graduate Student Organization

- Fall BBQ
- Graduate Student Symposium
- PhD recruiting
- Industry presentations
- Social events
Graduate Student Appointment

• TA = Teaching Assistant
• GA = Graduate Assistant
  – Generally funded from research grants
• Fellow
  – Variety of types

• All appointments provide tuition and health, but mechanisms can differ (e.g., health)
• Your appointment type will change from year to year
Registration – TA appointments

• 155:501 Advanced Transport Phenomena I (3)
• 155:507 Analytical Methods (3)
• 155:511 Advanced Chemical Engineering Thermodynamics (3)
• 155:601 Chemical Engineering Graduate Seminar (0)
• 155:877 Teaching Assistantship (6)

• Total 15 credits
• NOTE: Registration deadline Sept. 3!
• 155:501 Advanced Transport Phenomena I (3)
• 155:507 Analytical Methods (3)
• 155:511 Advanced Chemical Engineering Thermodynamics (3)
• 155:601 Chemical Engineering Graduate Seminar (0)
• 155:701 Chemical Eng. Research (6)
• 155:811 Graduate Fellowship (0)

• Total 15 credits
• NOTE: Registration deadline Sept. 3!
Math Assessment (155:507)

• Math course is taught in two sections
• Assessment quiz will be given on first day of class to determine section
  – All students should report to BME-102 (auditorium) and be seated by 5:00 PM sharp!
• Main topics: linear algebra, functions and series, ODEs
• You may like to review but don’t fret: you will have an excellent class in either section!
To Do

• Payroll
  – Spend time with Lynn being entered into the system

• Registration
  – Select classes via WebReg
  – Print term bill
  – Obtain, sign tuition remission form
  – Make copies of term bill and tuition remission form
  – Take to cashier’s office (College Ave.)