ROADMAP TO A PHD DEGREE

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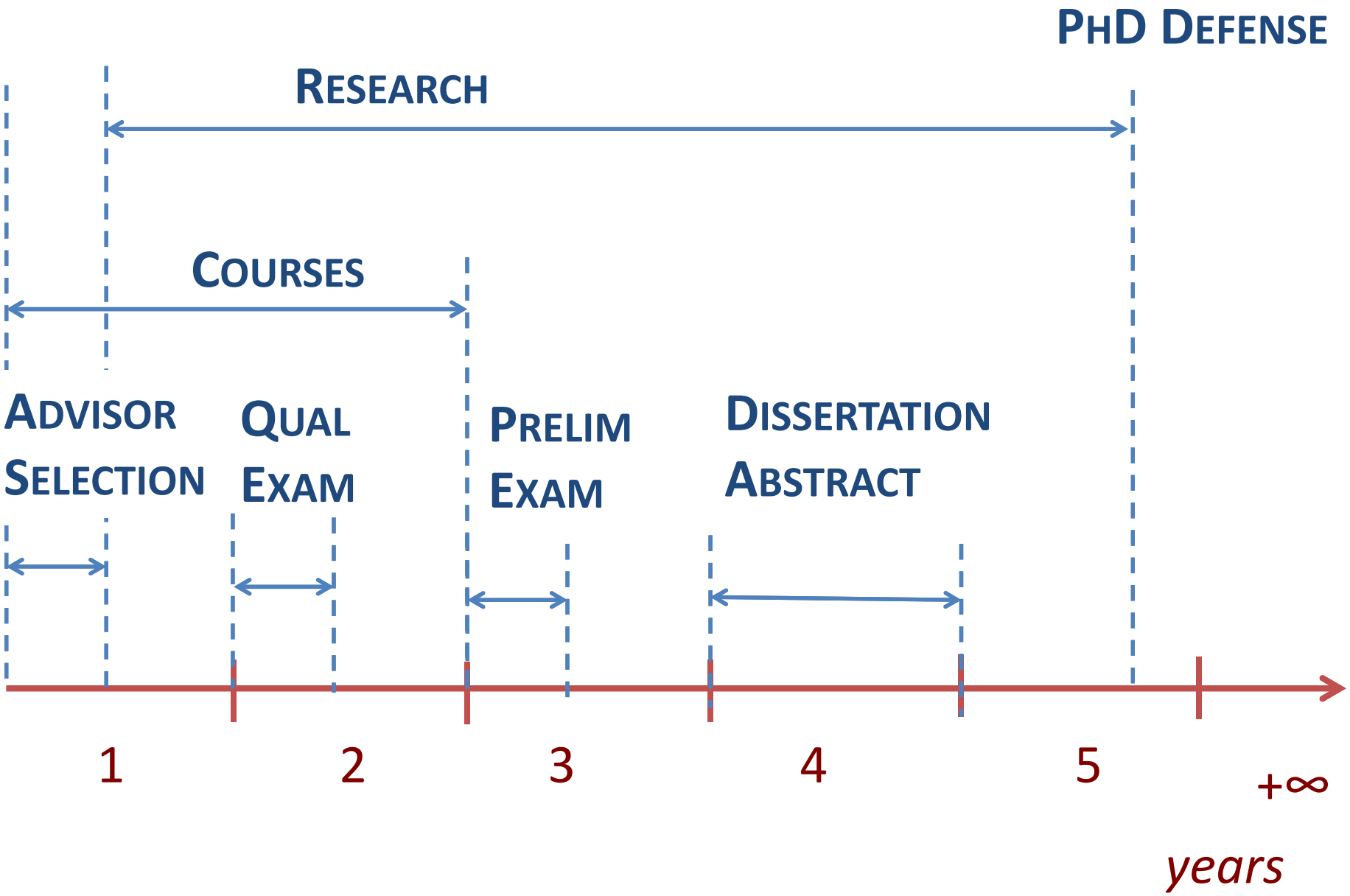
TOPICS COVERED:

- OVERVIEW OF REQUIRED COURSES
- ACADEMIC HONESTY AND PLAGIARISM
- TEACHING RESPONSIBILITIES
- ADVISOR SELECTION
- ROTATIONS
- VACATION POLICIES
- ENGLISH COURSES

Important Milestones



Courses:

- Two major "core" courses per semester (six total)
- Other courses are available if needed (to improve the lacking knowledge in basic chemistry fields or to expand the knowledge needed for research)
- Minimum GPA: 3.2 (majority of A's and B's).
- Talk with your instructor regarding your course progress during the semester.
- Success in your coursework can affect your advisor selection

Courses in the First Year (fall semester):

CHEM 6140: Quantum Chemistry

- Schrödinger equation for simple systems and approximations for larger molecular systems
- Sets the stage for the photochemistry and photophysics (Tarnovsky, PCS 7010) and computational chemistry (Olivucci, part of PCS 7040) courses

Peter Lu

CHEM 5660: Organic Spectroscopy

- Application of spectroscopy to study the structure of organic and organometallic molecules.
- IR, UV/VIS, MS, NMR and EPR

Jeremy Klosterman

Courses in the First Year (spring semester):

CHEM 5420: Organic Reaction Mechanisms

- Mechanistic aspects in organic synthesis
- Reaction types: additions, eliminations, radical reactions, reduction/oxidation reactions, etc.

Pavel Anzenbacher

PCS 7010: Photochemistry and Photophysics I

- Primarily photophysics
- Types of excited states, radiative and nonradiative transitions, energy and electron transfer, lasers.

Alexander Tarnovsky

Courses in the First Year:

PCS 7810: Seminars Photochemical sciences

- Fall and spring semester
- Attend departmental seminars.
- Fall: attend group meetings.
- Spring: presents a brief seminar (topics covered: several research papers of researchers from BGSU).

John Cable

ESOL 5040: English

- This course is taken by international students who need to improve their skills of spoken English language

- Some students need to take written English courses in the later semesters (ESOL 5000 and 5010)

Courses in the First Year (summer semester):

CHEM 6830: Problems in Chemistry (Hall Lecture)

- Every year one of the leading scientists in the field of photochemistry gives 3-4 lectures during the summer semester:http://www.bgsu.edu/departments/photochem/research/heinlen_seminars.html
- As a requirement for this course, student needs to write a report about the Hall lecture.
- Your PhD advisor will grade the report

CHEM 6900: Directed research

- your research performance during the first-year summer period will be graded.
- As a requirement for this course, student needs to write a report about their research.
- Your PhD advisor will grade.

Courses in the Second Year:

PCS 7020: Photochemistry and photophysics II

- Primarily photochemistry
- Topics covered: excimers, exciplexes, photooxidations, photoreductions, acid-base and other basic types of photochemistry.

Marshall Wilson

PCS 7040: Special topics in spectroscopy

Andrew Torelli

- Single-molecule spectroscopy (Lu)
- Computational chemistry: molecular mechanics, photochemistry, ab initio methods (Olivucci)
- Protein structure analysis and light driven biological functions of proteins (Torelli)

Peter Lu

Massimo Olivucci

Courses in the Second Year:

Optional courses:

Depending on your research interests, you might decide to take other optional courses, such as:

chem 5450 General Biochemistry I
Prof: Andrew Torelli

chem 5540 Principles of Instrumental Analysis
Prof: Ksenija D. Glusac

chem 5630 Advanced Inorganic Chemistry
Prof: Alexis Ostrowski

BIOL 6110 Transmission electron microscopy
Prof: Carol Heckman

Phys 6010 Techniques in Experimental Physics
Prof: Mikhail Zamkov

What if I had a low score at the Organic Chemistry entrance exam?

Pavel Anzenbacher

PCS 7820: Review of organic chemistry

- taken by students who need to improve their knowledge of organic chemistry
- Two-semester course
- Topics covered: classes of organic compounds and their reactivity
- Students will attend the organic chemistry lectures for chem 3410 and 3440 courses (taught by Steven Chung)
- In addition, students will attend recitation sessions once a week (taught by Pavel Anzenbacher).
- This course needs to be taken before chem 5660 (Organic Spectroscopy)

What if I had a low score at the Physical Chemistry entrance exam?

Alexander Tarnovsky

CHEM 5050 and 5060: physical chemistry

- taken by students who need to improve their knowledge of physical chemistry
- Two one-semester courses
- Topics covered: thermodynamics and quantum chemistry
- This course needs to be taken before chem 6140 (Quantum Chemistry)

Exams:

Qualifying Exam:

- At the end of fall semester of the second year
- Present your research project and results to the PhD committee
- Purpose: are you making good progress and do you understand the basic aspects and the background literature regarding your research project?

Preliminary Exam:

- At the end of the fall semester of the third year
- Present an original research proposal unrelated to your research project to the PhD committee
- Purpose: can you develop an independent research project that is creative and designed to answer some basic scientific question?

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What is academic integrity?

- Moral code in academia
- Honesty about representing source of ideas and knowledge
- Well-known violations:
  - Cheating
  - Plagiarism
- Many other scenarios – consider 'Academic Integrity Quiz'

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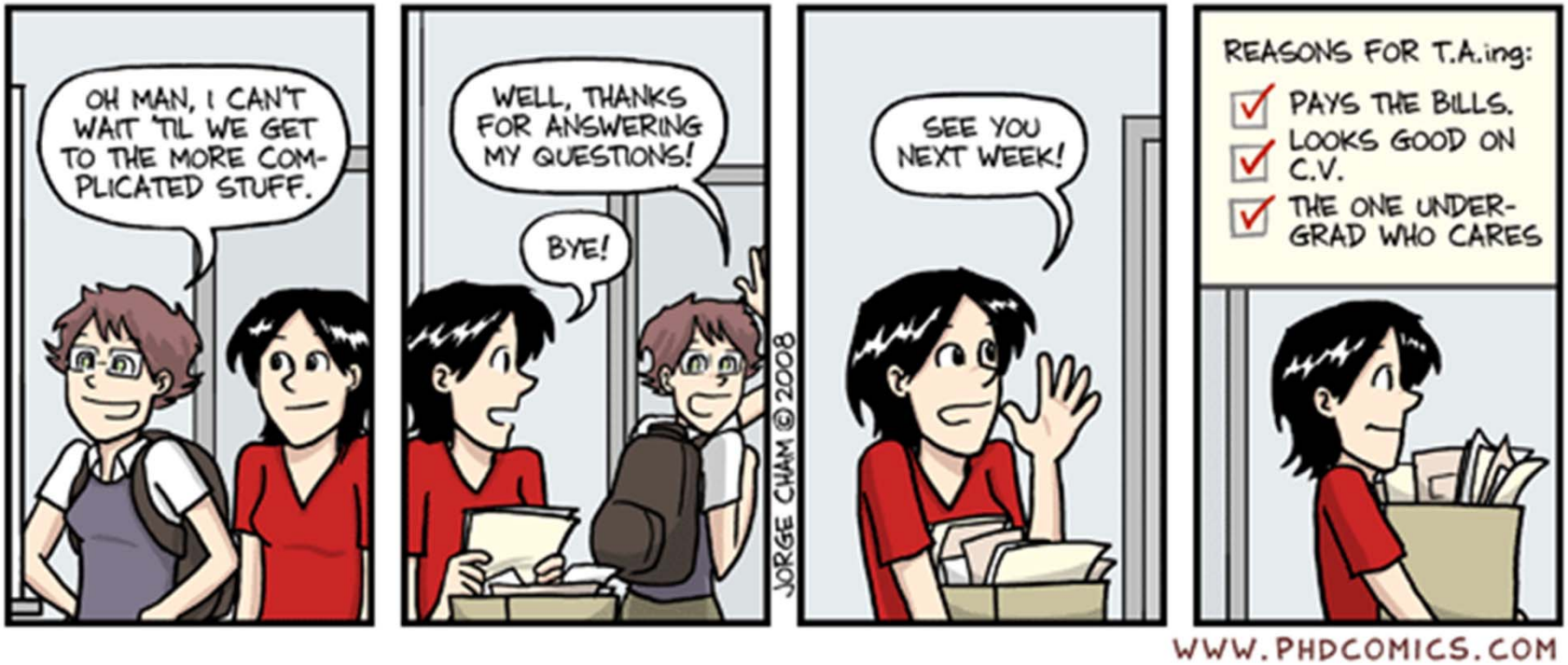
TEACHING ASSIGNMENTS

- TEACHING ASSISTANT IN THE LAB
- GRADING (EXAMS AND HOMEWORKS)



Teaching Assignments

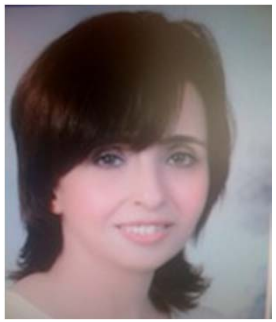
- You must show up, you must be on time and you must be prepared
- Interact with students in the lab while on assignment (do not talk on your cell phone, check your e-mail, talk to your friends…)
- Do not date students if you are their TA.
- TA awards are available for outstanding teaching assistants (nominated by faculty).
- More about the assignments at the Friday meeting with Dr. Mejiritski

Topics covered:

- Overview of required courses
- Academic honesty and plagiarism
- Teaching responsibilities
- Advisor selection
- Rotations
- Vacation policies
- English courses

Advisor Selection

Wilson



Selim

Sun

Torelli

Olivucci

Anzenbacher

Lu

Klosterman

Ostrowski

Zayak

Leontis

Advisor Selection

It is important to find a good match. Things to consider:

- Shared research interests
- Publications
- Funding
- Group members
- Limited slots per faculty (be flexible)

Topics covered:

- Overview of required courses
- Academic honesty and plagiarism
- Teaching responsibilities
- Advisor selection
- Rotations
- Vacation policies
- English courses

Rotations:

- Fall Semester: Visit up to three different research groups

- Submit three choices by Wednesday, August 27, 2014.
- Group 1 (required) – September
- Group 2 (required) – October
- Group 3 (optional) – November

- Get to know group members

- Shadow graduate students

- Participate in group seminars

- Submit prioritized list of three groups in which you would like to work by end of first week of December.

Rotations:

Student selects group based on:

- Type of research
- Experience in group visitation

Faculty selects student based on:

- Entrance exam scores
- Grades in first semester courses
- Experience in group visitation

Each faculty member will usually only be able to select one new graduate student each year. So these selections must be made very carefully

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Vacation Policy:

- Paid vacation days/year include all University holidays and 14 working days.
  - Students are required to be working in the laboratory between terms and during summer even though class is not in session.
  - Vacation days may be accumulated for several years with approval of supervising professor.
  - All vacation days should be reported to graduate secretary
  - University holidays for the next academic years include:

    Labor Day – September 1, 2014
    Veteran's Day – November 11, 2014
    Thanksgiving Day – November 27, 2014
    Columbus Day (floating holiday) – November 28, 2014
    Christmas Day – December 25, 2014
    President's Day (floating holiday) – December 26, 2015
    New Year's Day – January 1, 2015
    Martin Luther King Day – January 19, 2015
    Memorial Day - May 25, 2015
    Independence Day – July 3, 2015

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ENGLISH COURSES:

TESTING OF STUDENTS

PLACEMENT OF STUDENTS

RESULTS TO GRADUATE COORDINATOR

English Courses:

Writing Classes

ESOL 5000:
Academic Composition I

Grammar and sentence structure

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ESOL 5010:
Composition II

Graduate level writing

Speaking Classes

ESOL 5030:
Intermediate listening and speaking

Required for TOEFL scores 20 and below. Students are not cleared to teach. Vocabulary, presentation skills.

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ESOL 5040:
English for TAs I

Required for TOEFL scores 21-23

For non-native tutors

Cleared to teach

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ESOL 50450:
English for TAs II

Required for TOEFL scores 21-23

Special emphasis on communication

Cleared to teach