



Center for Photochemical Sciences
BOWLING GREEN STATE UNIVERSITY

LIGHTING THE WAY

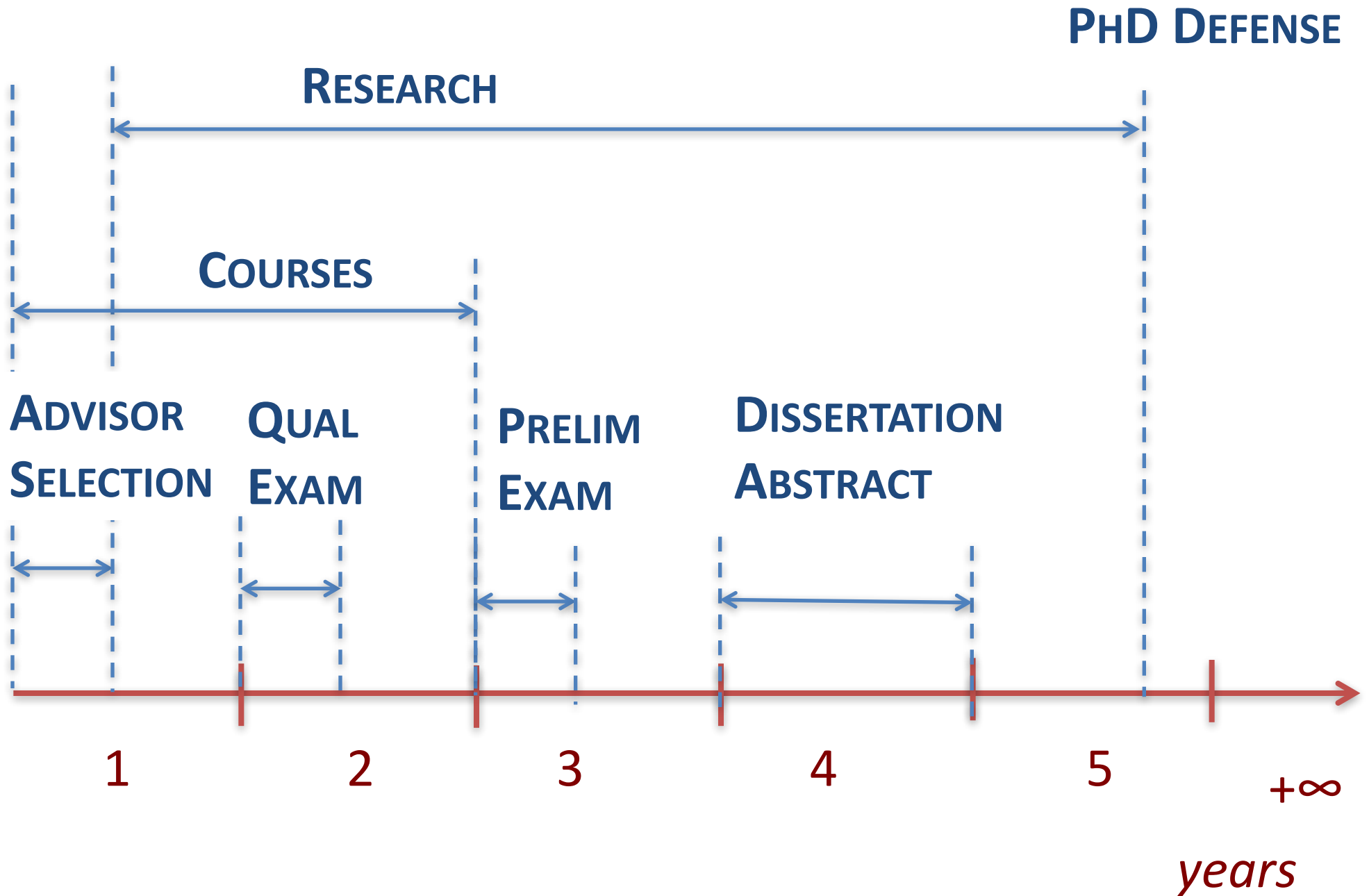
ROADMAP TO A PHD DEGREE

KSENIJA D. GLUSAC, GRADUATE COORDINATOR

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: 3.0 (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



**KSENIJA
GLUSAC**



**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, EXCIPILEXES, PHOTOOXIDATIONS, PHOTOREDUCTIONS, ACID-BASE AND OTHER BASIC TYPES OF PHOTOCHEMISTRY.



**MARSHALL
WILSON**

PCS 7040: SPECIAL TOPICS IN SPECTROSCOPY

- SINGLE-MOLECULE SPECTROSCOPY (LU)
- COMPUTATIONAL CHEMISTRY: MOLECULAR MECHANICS, PHOTOCHEMISTRY, AB INITIO METHODS (OLIVUCCI)
- PROTEIN STRUCTURE ANALYSIS AND LIGHT DRIVEN BIOLOGICAL FUNCTIONS OF PROTEINS (TORELLI)



**ANDREW
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?

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)



**PAVEL
ANZENBACHER**

WHAT IF I HAD A LOW SCORE AT THE PHYSICAL CHEMISTRY ENTRANCE EXAM?

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)



**ALEXANDER
TARNOVSKY**

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?

TOPICS COVERED:

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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

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ADVISOR SELECTION



TARNOVSKY



ZAMKOV



KLOSTERMAN



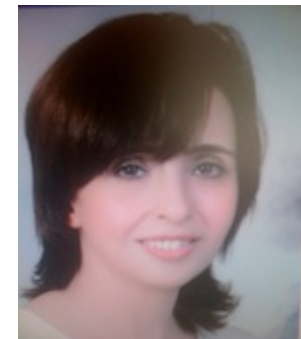
LU



OLIVUCCI



OSTROWSKI



SELIM

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)

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ROTATIONS:

- FALL SEMESTER: VISIT UP TO THREE DIFFERENT RESEARCH GROUPS
- **E-MAIL YOUR FIRST ROTATION CHOICE TO HILDA BY WED, AUG 31, 2016.**
 - 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

TOPICS COVERED:

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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 5, 2016
 - VETERAN’S DAY – NOVEMBER 11, 2016
 - THANKSGIVING DAY – NOVEMBER 23-35, 2016
 - CHRISTMAS DAY – DECEMBER 25, 2016
 - NEW YEAR’S DAY – JANUARY 1, 2016
 - MARTIN LUTHER KING DAY – JANUARY 16, 2017
 - INDEPENDENCE DAY – JULY 4, 2017

TOPICS COVERED:

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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



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.



ESOL 5040: ENGLISH FOR TAS I

REQUIRED FOR TOEFL
SCORES 21-23

FOR NON-NATIVE TUTORS

CLEARED TO TEACH



ESOL 50450: ENGLISH FOR TAS II

REQUIRED FOR TOEFL
SCORES 21-23

SPECIAL EMPHASIS ON
COMMUNICATION

CLEARED TO TEACH