Grad Student Orientation

Andrew C Klein
Professor
Director of Graduate Programs
September 24, 2014
2014-15 Entering Graduate Students

- Mitchell Gagne (MP)
- Celeste Leary (MP)
- Joshua Mathews (MP)
- Elizabeth Polsdofer (MP)
- Grant Blake (NE)
- Kyle Combs (NE)
- Steven Czyz (NE)
- Jordan Danielson (NE)
- Kyle Hoover (NE)
- Jonathan Jordahl (NE)
- Griffen Latimer (NE)
- Lara Peguero (NE)
- David Rinaldi (NE)
- Harrison Redman (RHP)
- Jessica Curtis (RHP)
- Angelica Gheen (RHP)
- Kyle ODonnell (RHP)
- Chad Nixon (NE)
- Clinton Knaus (RHP)
- George Ng (RHP)
- Danielle Donnelly (RHP)
- Halder Hernandez (RHP)
- Ashley Menard (RHP)
- Elizabeth Pharr (RHP)
- Ryan Smith (RHP)
- Ian Baldridge (RHP)
- Andrew Conway (RHP)
- Brian Fairchild (RHP)
- Killian Fischer (RHP)
- Hilary Lane (RHP)
- Amanda Majcher (RHP)
- Ariel Mason (RHP)
- Raymond Meyer (RHP)
- Brian Serencsits (RHP)
- Nicole Zayas (RHP)
- William Moak (RHP)
- Donald Samaan (RHP)
- Richard Shaw (RHP)
- Lane Waddell (RHP)
- Jason Wetstone (RHP)

Master’s Program / Doctoral Program / Distance
Items to Cover

- Department Basics
- Grad Student Expectations
- Definition of “Success”
- Ethics
Graduate Program Stats

Graduated in 2013-14: 43 (12 NE, 28 RHP, 3 MP)
Incoming Students: 40 (out of 179 applicants)
Graduate Faculty: 11
Graduate Population: 123

- Nuclear Engineering (44)
  - 41% PhD
  - 7% female
- Health Physics (65)
  - 13% PhD
  - 36% female
- Medical Physics (14)
  - 22% PhD
  - 43% female
Initial Advisor Assignments

- Mitchell Gagne (Tack)
- Celeste Leary (Tack)
- Joshua Mathews (Tack)
- Elizabeth Polsdofer (Tack)
- Grant Blake (Woods)
- Kyle Combs (Klein)
- Steven Czyz (Klein)
- Jordan Danielson (Klein)
- Kyle Hoover (Wu)
- Jonathan Jordahl (Klein)
- Griffen Latimer (Marcum)
- Lara Peguero (Palmer)
- David Rinaldi (Paulenova)
- Harrison Redman (Hamby)
- Jessica Curtis (Paulenova)
- Angelica Gheen (Klein)
- Kyle ODonnell (Klein)
- Chad Nixon (Marcum)
- Clinton Knaus (Higley)
- George Ng (Higley)
- Danielle Donnelly (Hamby)
- Halder Hernandez (Hamby)
- Ashley Menard (Hamby)
- Elizabeth Pharr (Hamby)
- Ryan Smith (Hamby)
- Ian Baldridge (Hamby)
- Andrew Conway (Hamby)
- Brian Fairchild (Hamby)
- Killian Fischer (Hamby)
- Hilary Lane (Hamby)
- Amanda Majcher (Hamby)
- Ariel Mason (Hamby)
- Raymond Meyer (Hamby)
- Brian Serencsits (Hamby)
- Nicole Zayas (Hamby)
- William Moak (Hamby)
- Donald Samaan (Hamby)
- Richard Shaw (Hamby)
- Lane Waddell (Hamby)
- Jason Wetstone (Hamby)
NE/RHP Faculty & Staff

Genius is nothing but labor and diligence.

– William Hogart, 1697
Kathryn Higley
Professor
Department Head
Abi Farsoni
Associate Professor

David Hamby
Professor

currently CTO at NuScale Power, Inc.

Jose Reyes
Professor
Andy Klein
Professor

Wade Marcum
Assistant Professor

Todd Palmer
Professor
Alena Paulenova
Professor

Brian Woods
Professor

Qiao Wu
Professor
Krystina Tack
Assistant Professor
Medical Physics Program Director

Haori Yang
Assistant Professor
Janet Knudson
Administrative Assistant to the Department Head

Heidi Braly
Graduate Student Administrator and E-campus Coordinator
Quote from Prospective Employer

“… beyond education, I'm really interested in someone who’ll bring the intangibles (superb work ethic, organizational skills, attention-to-detail, etc.).”
Radiation Center Staff

Never be too big to ask questions. Never know too much to learn something new.

– Og Mandino
(1923 – 1996)
Steve Reese, PhD
RC Director &
NE/RHP Lecturer

Scott Menn, PhD
RC Sr. Health Physicist

Jim Darrough
RC Health Physicist
Dina Pope
RC Office Manager

Brittany Combs
RC Receptionist

Erin Cimbri
RC Custodian
RC Map

Student Desks
Knowledge is of two kinds; we know a subject ourselves, or we know where we can find information upon it. – Samuel Johnson

In any field, find the strangest thing and then explore it. – John Archibald Wheeler, American theoretical physicist
Master’s Degree Graduation Requirements

– MS
  • research degree
  • 45 credit hours (39 didactic/6 research)
    – optional minor: 15/18 credits
  • thesis research and oral defense

– MHP/MEng
  • professional degree
  • 45 credit hours (all didactic)
    – optional minor: 15/18 credits
  • final oral exam
Doctoral Degree Graduation Requirements

- 108 credit hours min. (72 didactic/36 research)
- courses determined by committee
- minimum one year residency at OSU
- Program Meeting ("contract negotiations")
- Qualifying Exam (2-day written exam)
- Preliminary Exam (research proposal & oral exam)
- Dissertation research and oral defense
NE Core Requirements (MS)

*MEng – same didactic requirements

- NE 503 (6) Thesis Research
- NE 507 (3) Seminar (every term)
- NE 515 (2) Nuclear Rules & Regulations (F)
- NE 531 (3) Radiophysics (F)
- NE 535 (4) Radiation Shielding & Ext Dosimetry (S)
- NE 536 (4) Advanced Radiation Detection (W)
- NE 551 (3) Neutronics Analysis I (F)
- NE 552 (3) Neutronics Analysis II (W)
- NE 553 (3) Advanced Reactor Physics (S)
- NE 557 (2) Advanced Nuclear Reactor Lab (S)
- NE 567 (4) Reactor Thermal Hydraulics (F)
- NE 568 (3) Nuclear Reactor Safety (W)
- NE 573 (3) Nuclear Reactor Systems Analysis (F)
RHP Core Requirements (MS)

*MHP – same didactic requirements

- RHP 503 (6) Thesis Research
- RHP 507 (3) Seminar (every term)
- RHP 515 (2) Nuclear Rules & Regulations (F)
- RHP 516 (4) Radiochemistry (W) or RHP 519 (4) Radiochemical Analytical Methods
- RHP 531 (3) Radiophysics (F)
- RHP 535 (4) Radiation Shielding & Ext Dosimetry (S)
- RHP 536 (4) Advanced Radiation Detection (W)
- RHP 582 (3) Applied Radiation Safety (W)
- RHP 583 (4) Radiobiology (W)
- RHP 588 (3) Radioecology (F)
- RHP 590 (3) Internal Dosimetry (W)
- ---- (3) Elective
- ---- (3) Elective
MP Core Requirements
Required for All MP Students

RHP 521 Radiological Anatomy & Physiology (4)
RHP 531 Radiophysics (3)
MP 535 Radiation Shielding & External Dosimetry (4)
MP 536 Advanced Radiation Detection (4)
MP 583 Radiation Biology I (3)
MP 584 Radiation Biology II (3)
MP 562 Radiation Therapy Physics (OHSU Campus) (3)
MP 541 Diagnostic Imaging Physics I (OHSU Campus) (3)
MP 542 Diagnostic Imaging Physics II (OHSU Campus) (3)
MP 507 Seminar Medical Physics (1 credit)

AND

MP 507 Seminar / Journal Club (1 credit/each; 2 credits)
ST 511 Methods of Data Analysis (4)
PHL 544 Biomedical Ethics (4)
MP 503 Thesis (6 minimum)
MP Specialized Courses
Required for Radiation Therapy Students

MP 563 Applied Radiation Therapy Physics Lab I (OHSU Campus) (3)
MP 564 Applied Radiation Therapy Physics Lab II (OHSU Campus) (3)
MP 510 Clinical Practice; 400 hours required (OHSU Campus) (3-12)

60 Minimum Required Credits for the Degree
MP Specialized Courses Required for Diagnostic Imaging Students

MP 543 Advanced Diagnostic Imaging Physics
   (OHSU Campus) (3)
MP 544 Nuclear Medicine Imaging
   (OHSU Campus) (3)
MP 545 Diagnostic Imaging Physics Practicum
   (OHSU Campus) (3)

60 Minimum Required Credits for the Degree
All things are difficult before they are easy.
– Thomas Fuller, 1608

If you don’t go after what you want, you’ll never have it. If you don’t ask, the answer is always no. If you don’t step forward, you’re always in the same place. – Nora Roberts, American author
Where there is no struggle, there is no progress. – Frederick Douglas

To love what you do and feel that it matters --- how could anything be more fun? – Katherine Graham, American publisher
PhD Program Timeline

- M.S.
- 1st yr
- 2nd yr
- 3rd yr

Narrow the Topic Area
Select Committee
Program Mtg.
Qualifier
Prelim.
Defense
# Representative Offerings for 2014-15

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The Graduate Experience
As A Graduate Student …

1. You will take fewer courses per term than you did in your undergraduate days, but the work should be more intense.

2. You are expected to be more independent (than undergrads) – to learn things on your own and from each other.

3. You may work for the department (GTA), or for a specific professor (GRA), while pursuing your degree (0.4 FTE = 16 hrs/wk).
   a) GTA expectations: determined by instructor
   b) GRA expectations: determined by your advisor

4. You are expected to apply for Fellowships/Scholarships.

5. Your choice of advisor is very important to your future.

6. You will develop research skills -- graduate degrees are generally research degrees.

7. You are expected to conduct research that is publishable.
Measures of “Success”

1. The quality of your research and resulting publications.
2. The quality and number of your conference presentations.
3. Fellowships, honors, and awards received.
4. Summer research experience(s).
5. GPA (note that this is not first on the list!).

In essence, you are building an academic curriculum vitae (CV).

Your path after grad school is a strong function of:
- Your research area and the quality of your work;
- Behind the scenes work of your advisor;
- How well you interview;
- The letters of recommendation you receive; and
- Fate (being in the right place at the right time).
Research Ethics

- Consider the social consequences
- Don’t fool yourself
- Know how to use your data
- Understand the principles of authorship
- Look to your faculty advisor for guidance
Social Consequences

- We work in a controversial field.
- People will question you, and you may question yourself.
- Don’t compromise your integrity in the conduct of your research.
Don’t Fool Yourself

• Everyone wants their favorite hypothesis to be true.
• A researcher could waste a career defending a view they should have realized was mistaken.
• The most difficult problem in research is recognizing when you are wrong.
• If you cut corners and ignore contrary evidence — or show more concern for finishing a paper or degree than understanding the science — then your reputation will suffer, and you’re likely not to find the truth.
The Ethical Use of Your Data

- Are we “allowed” to clean up our data?
- When, if ever, is it acceptable to ignore outliers?
- Different disciplines have different ways of resolving these questions.
- Talk with your advisor about their thoughts.
Principles of Authorship

When should your name go on a paper?

- Contribution of original ideas
- Design and writing of an approved protocol
- Responsibility for acquisition of data
- Responsibility for and leadership in the performance of the study
- Analysis and critical interpretation of data
  - including review and evaluation of previous studies
- Drafting, revising, and reviewing the manuscript
- Responsibility for the final manuscript
- Willingness and ability to defend the publication

Houck and Thacker (1990)
Your Faculty Advisor

All students in graduate programs must have a major professor; if a doctoral student does not have a willing major professor, he/she will be asked to leave the university.

Frequent personal contact between the student and the advisor (and committee members) is paramount.

Graduate education is meant to initiate the student into the practice of scholarship, i.e., independent critical judgment, scientific rigor, intellectual honesty, sincere/meaningful investigation.
Your Faculty Advisor

**Your advisor should:**
- Encourage you to engage in scholarly activities, e.g., present papers at conferences, submit articles, write grant applications
- Alert you to collaborative opportunities
- Prepare you for your job search
- Not give you assignments that will unnecessarily delay degree completion
- Provide supervision of your project(s)

**You should expect your advisor to provide:**
- Academic/research guidance
- Periodic evaluation of progress, performance, and professional potential
- Assistance in convening meetings of your committee
- Allow you the freedom to pursue novel ideas
- Freedom of conscience and freedom of speech
Your Responsibilities

• Treat all university employees with respect

• Learn and follow pertinent university regulations and policies

• Communicate often, honestly, and directly with your advisor

• Conduct research responsibly, and with integrity

• Pursue novel ideas
Students learn:

10% of what they read;
20% of what they hear;
30% of what they see;
50% of what they see and hear;
70% of what they discuss with others;
80% of what they experience personally; and
95% of what they teach to someone else.
Graduate Handbook

- Written as an attempt to answer many of your initial questions

- Provides details as to what steps are required in the process of obtaining graduate degrees

- On the NE/RHP website
  - Can be reached from the Current Students page, or [http://ne.oregonstate.edu/sites/ne.oregonstate.edu/files/2014-2015_graduate_student_handbook_web_0.pdf](http://ne.oregonstate.edu/sites/ne.oregonstate.edu/files/2014-2015_graduate_student_handbook_web_0.pdf)

- Graduate Guide to Success
  - Can be found on the Graduate School’s website, or [http://oregonstate.edu/dept/grad_school/success.php](http://oregonstate.edu/dept/grad_school/success.php)
Other ....

- Setup your computer account(s):
  - http://onid.oregonstate.edu
  - http://engr.oregonstate.edu/computing

- Meet the faculty
- Meet the staff
- Check your mailbox regularly
- Forward ONID mail

- Remember that your graduate experience is what you make of it!
Many of life’s failures are people who did not realize how close they were to success when they gave up. – Thomas Edison

Once in a while you get shown the light, in the strangest of places if you look it right — Jerry Garcia
So that’s it. I’ve told you everything I know. Think clearly and think for yourself; learn to use language to express those thoughts. Love somebody with all your heart … and with everyone, whether you love them or not, find out how you can be helpful. – Alan Alda

Faring thee well now, let your life proceed by it's own design. Nothing to tell now, let the words be yours, I am done with mine. – John Perry Barlow
I have a distinct suspicion that there is no meaning to life. Or, as it says on a plaque a friend gave me, “What if the hokey-pokey is really what it’s all about?” – Alan Alda