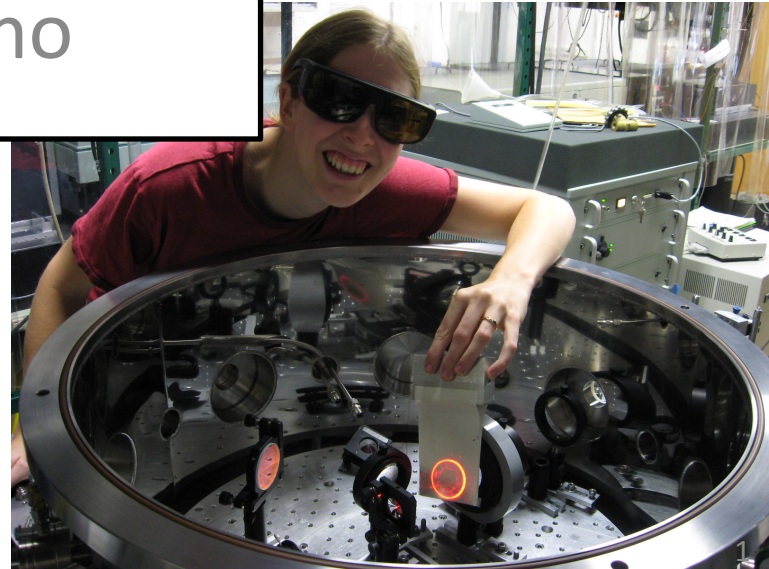
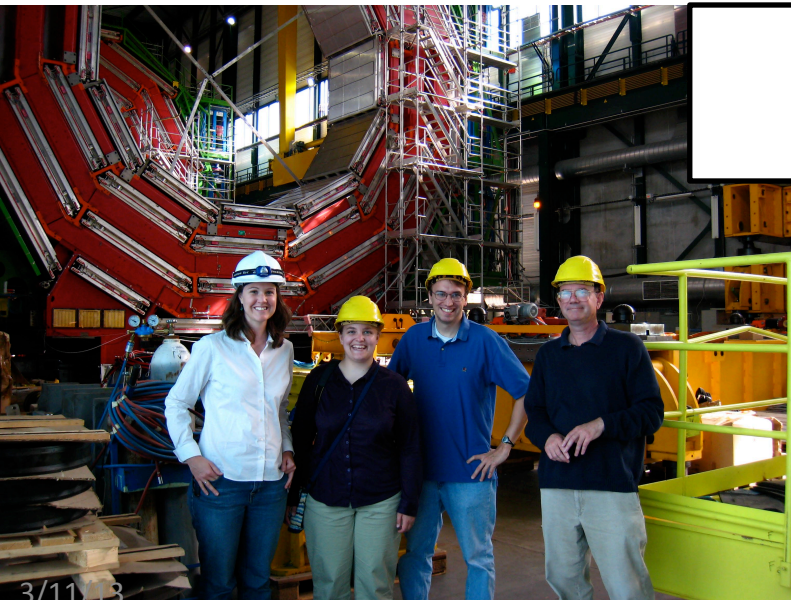


Graduate Program

Sarah Eno



External Review, Physics

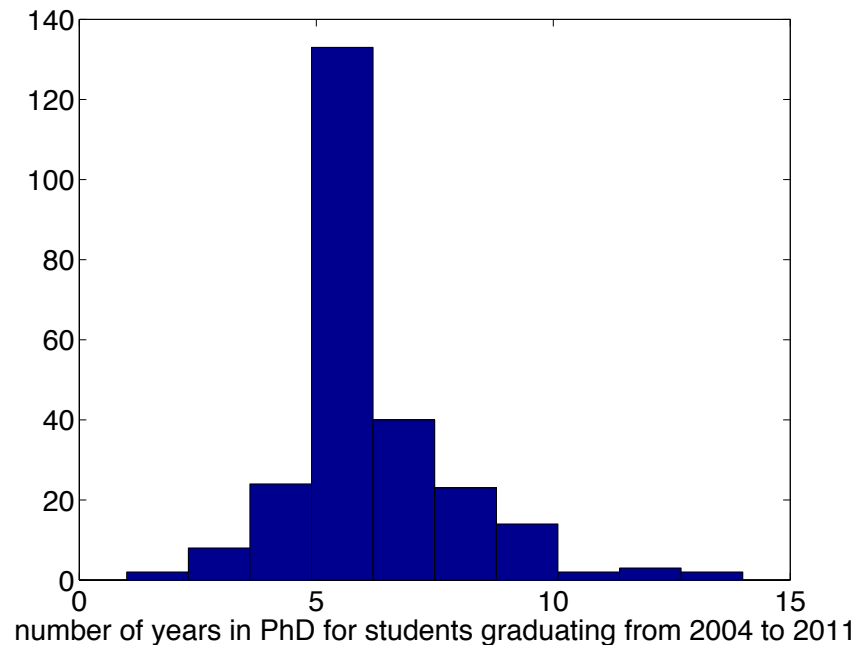
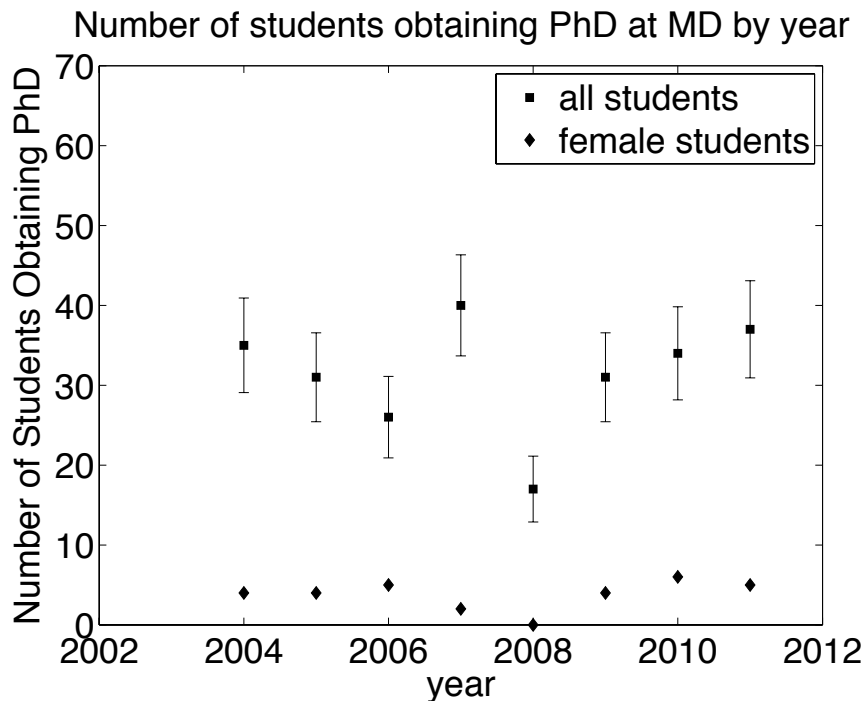


Outline

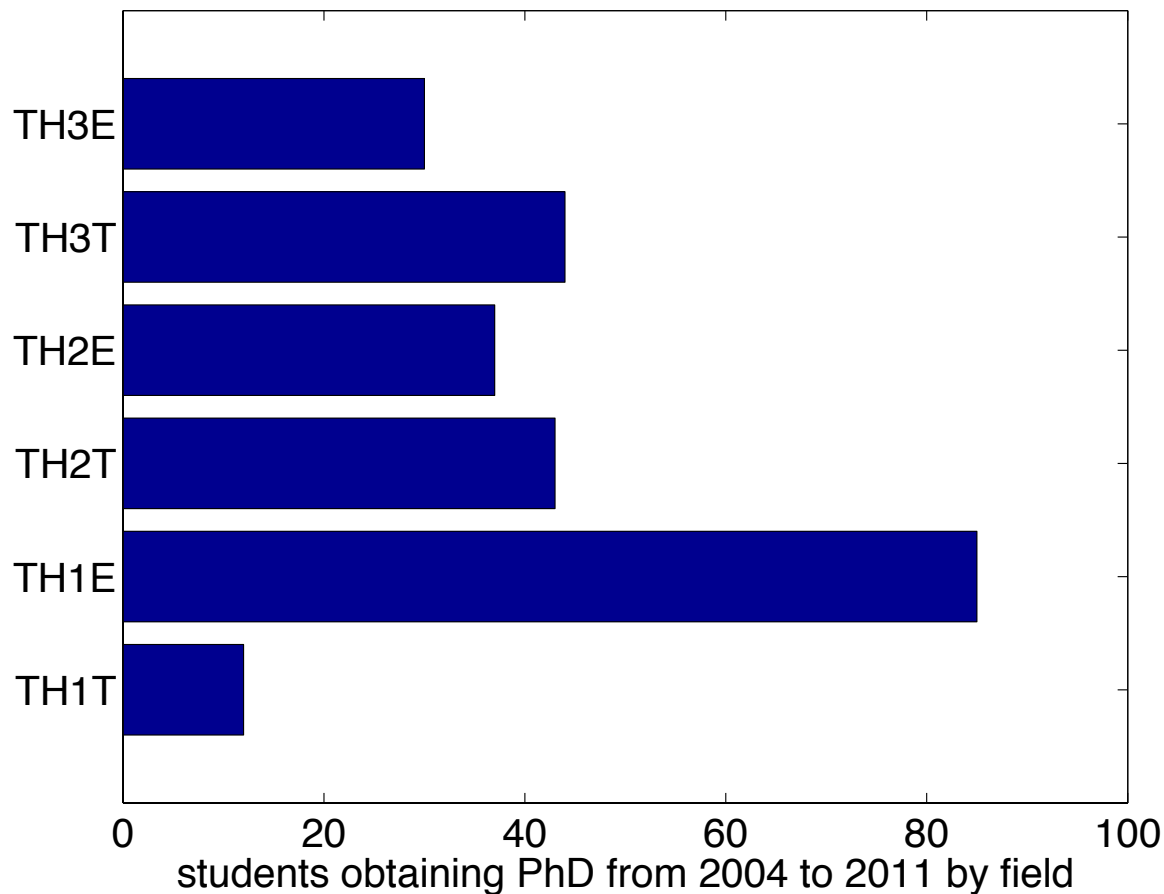
- Basic Statistics
- Recruitment
- Courses/Advising/Retention
- Plans

Basic Statistics

- 232 graduate students (about 40/class)
- Fraction foreign in recent years: 30%, 21%, 34% (2010, 2011, 2012)
- Advised by members of our faculty, IPST, chemistry, math, materials, LPS, NASA-Goddard, NIST, NIH, etc.



Basic Statistics



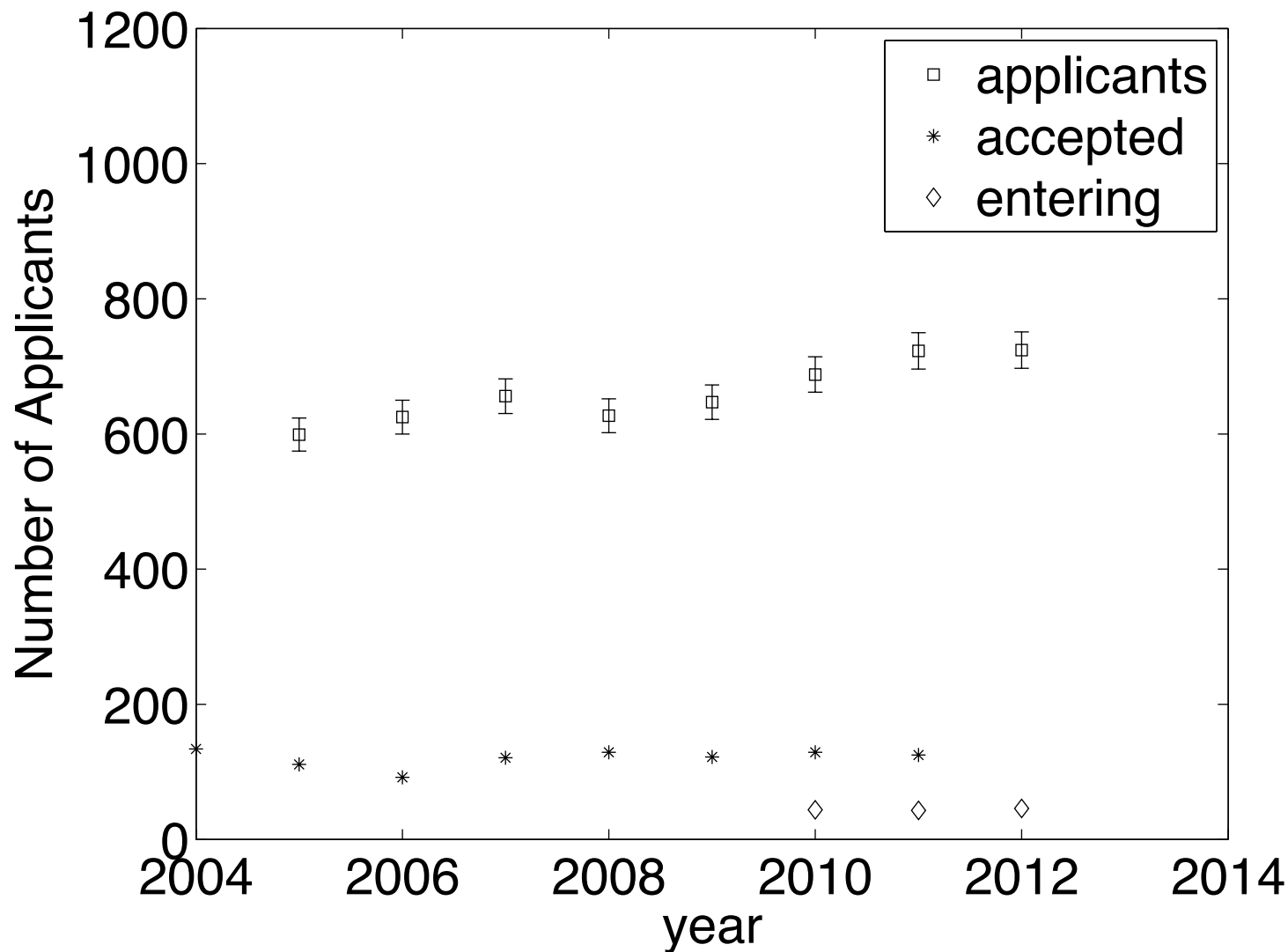
Theme Group 1: AMO and condensed matter

Theme Group 2: high energy, nuclear, gravity, particle astrophysics

Theme Group 3: other

Recruitment

Applicant Pool by Year



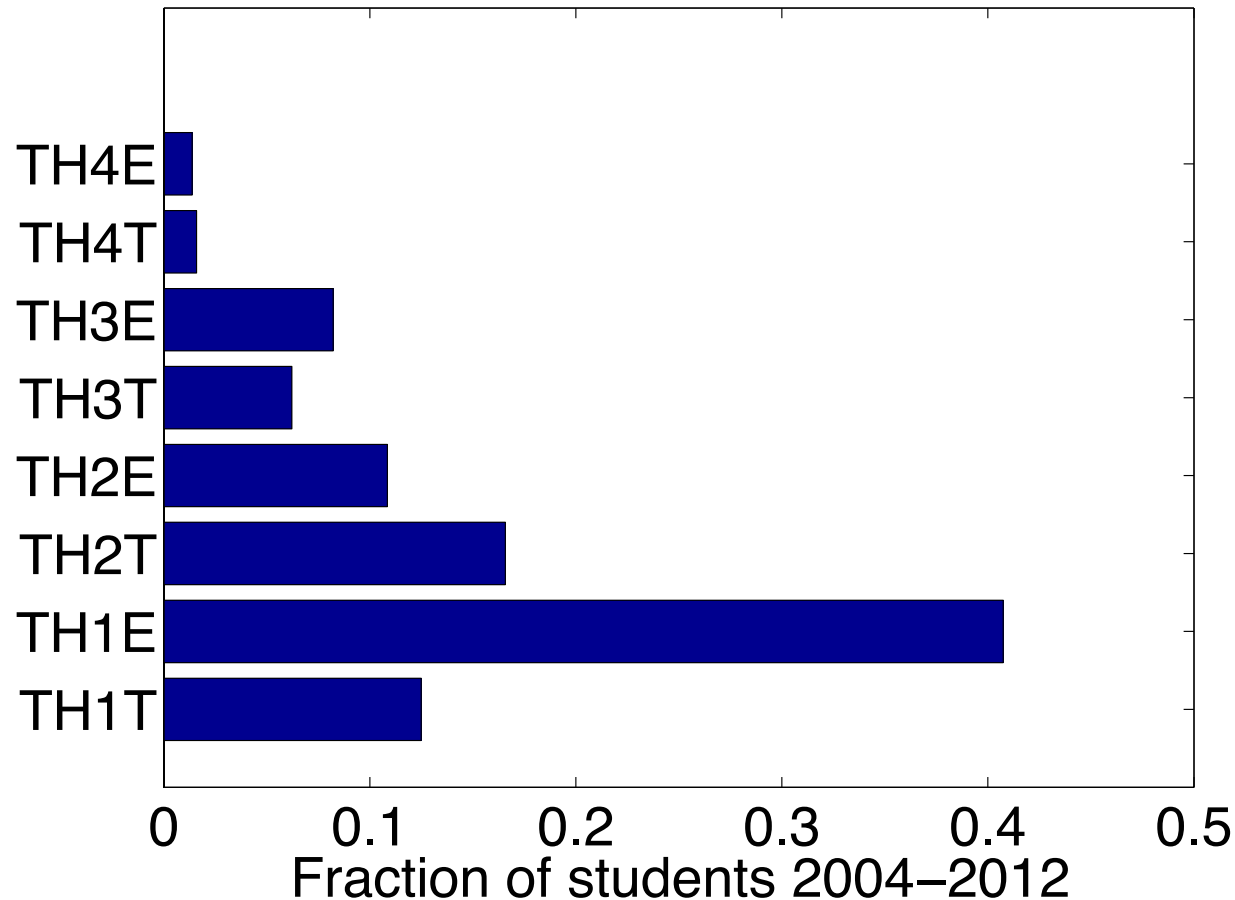
Recruitment



Year	2010	2011	2012
GRE Physics: US	780	804	820
GRE Physics: foreign	927	969	970
GPA: US	3.68	3.88	3.81

Recruitment

Student initial theme group 2004–2012



Theme Group 1: AMO and condensed matter

Theme Group 2: high energy, nuclear, gravity, particle astrophysics

Theme Group 3: other

Theme Group 4: undecided

Recruitment

- Accept rate is about 30%
- University, JQI, CNAM provide various types of Fellowship money, which allows us to make different kinds of offers (first year salary, domestic yield in 2012):
 - Type I: \$31.6k, 10%
 - Type II: \$26.6k, 21%
 - Type III: \$24.1k, 33%
 - TA/RA only: \$21.6k (small statistics)
 - 3 large fellowship offers per year. So far yield is zero
- Challenges
 - Number of TA lines has dropped 10% since 2007.
 - Salary at MIT is about \$30k for average student TA/RA. Yale as well.



Curriculum

- Established by faculty and monitored by Associate Chair and Graduate Committee.
- Graduate Committee has five faculty members, including the chair, and two non-voting graduate-student members. Chair is Prof. Einstein.

Curriculum



The screenshot shows a web browser window displaying the University of Maryland Physics Department's graduate page. The browser's address bar shows the URL "umdphysics.umd.edu/academics/graduate.html". The page features a navigation menu with links for Home, About Us, People, Academics, Research, Services, and Events. The main content area is titled "Graduate" and includes a paragraph describing the department's offerings. A sidebar on the left lists various resources for prospective students, and a "Contact Information" box on the right provides details for the Office of Student Services, including contact information for Sarah Eno, Jane Hessing, and Linda O'Hara.

umdphysics.umd.edu/academics/graduate.html

Most Visited Getting Started Book

Physics UMD Directory

physics

University of Maryland

Home About Us People Academics Research Services Events

Graduate

The Department of Physics at the University of Maryland offers graduate study and research leading to Master of Science and Doctoral degrees. In the majority of cases, our students are admitted to the PhD program. We are one of the nation's leading recipients of research grants. We have over 25 research programs and institutes. Our students conduct research at many of the national laboratories and research facilities in the immediate area.

[Prospective Students](#)

[How to Apply](#)

[Requirements](#)

[Financial Assistance](#)

[Expectations](#)

[Qualifier Exams](#)

[Where's My TA?](#)

[Writing Resources](#)

[Graduate Student Guide \(2012\)](#)

Contact Information

Office of Student Services

1120 Physics Building
University of Maryland
College Park, MD 20742

[Sarah Eno](#), Associate Chair for Graduate Education
301.405.7179

[Jane Hessing](#), Academic Program Specialist
301.405.5980

[Linda O'Hara](#), Academic Program Specialist
301.405.5982

Curriculum



REQUIREMENTS

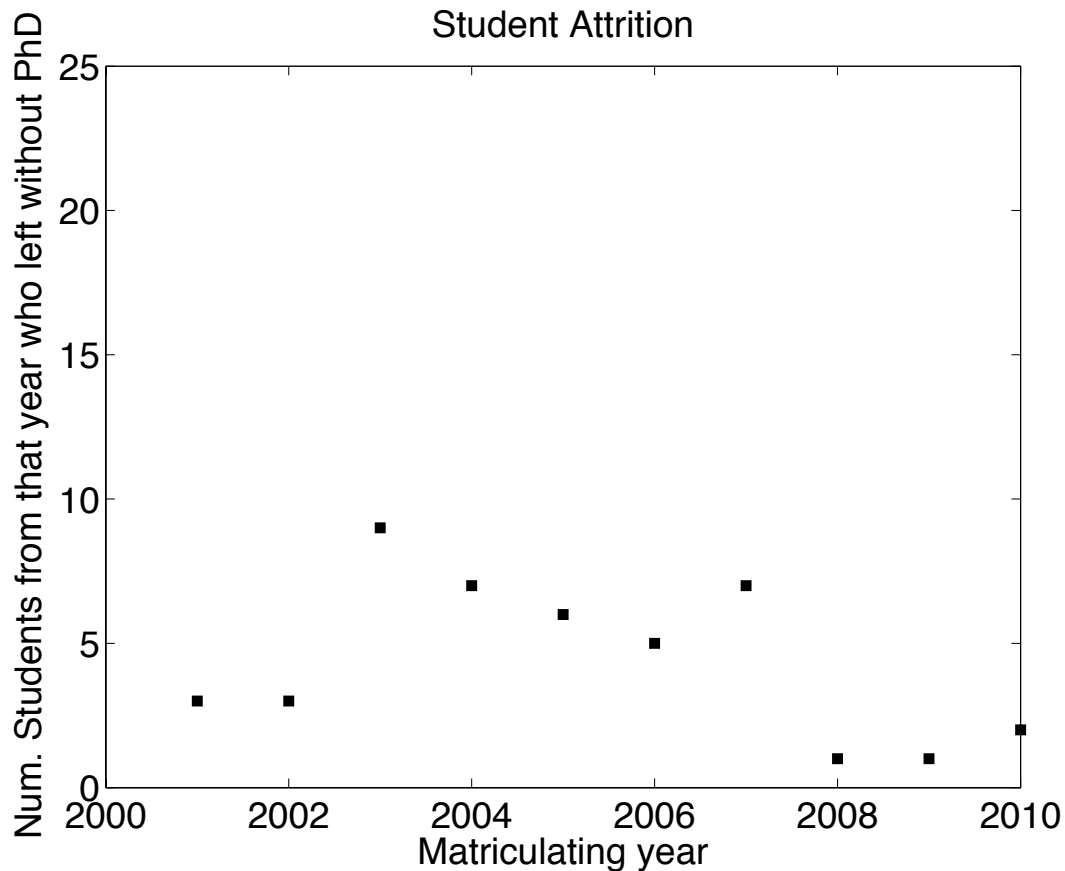
1. Competence in basic physics as evidenced by passing a written qualifying examination. In case of marginal performance on the written exam the student may be invited to take an oral examination (see below for additional comments).
2. For theory students, passing PHYS 624 or 625 with a grade of B or better. (624/625 is field theory/many body)
3. Complete the zero-credit "Foundations and Frontiers of Physics" Research Seminar before the end of the third semester.
4. Making a satisfactory Preliminary Research Presentation, to be approved by two faculty members, at least one of whom must be a tenure track member of the physics program. With a view towards prompting early, frequent contacts between the student and the research advisor, the Presentation is normally scheduled to take place before August 31 for a student who passed the qualifier the previous August, and before January 31 for a student who passed the qualifier the previous January. Delays require the approval of the Associate Chair for Graduate Education.
5. Advancement to candidacy before the end of the fourth year. This requires, in addition to the fulfillment of requirements 1, 2, 3 and 4, the completion of a scholarly paper approved by two faculty members, one of whom must be a tenure track member of the physics program.
6. Passing (with a grade of B or better) two advanced courses outside the student's field of specialization, at least one of which must be a Physics course at the 700 level or above.
7. Taking at least 2 credits of seminar, at least 12 credits of dissertation research, and presenting and successfully defending an original dissertation.
8. Maintenance of an overall grade point average of 3.00 or above, as calculated by the Graduate School.



Curriculum

- Almost no required courses. Most students do take the first year offerings to help prepare for qualifier.
- Students are interviewed when they advance to candidacy and defend to get student input to program.
- Instruction in teaching is a half-day workshop during fall orientation.

Retention



- Recently lose about 20% of each incoming class.
- Mostly because decided graduate school was not for them.
- Other reasons include poor academic performance, poor health, to move to another institution, and unknown reasons.



Administrative Support

- Two administrative specialists: Jane Hessing and Linda O'Hara.
- New: head of student services, Donna Hammer



Current Problems

- Abysmal record keeping system
- Need more students interested in condensed matter experimentalists. Many opportunities at NIST, LPS, etc., not enough interested students.
- Low stipends
- Poor tracking of graduates
- Diversity



Plans

- Addition of Donna Hammer to Student Service Staff should help ensure adoption of new tools and continuity through changes in the associate chair
- Form LinkedIn group to help track alumni
- Work with APS to better track alumni
- Continue with effort to move students out of TAs into RAs as quickly as possible, both so they can graduate sooner and so we can expanded number of students.
- Change membership of Graduate committee to better reflect faculty involved in Qualifier exam and those typically teaching first year courses. Have Graduate committee meet more often.

backup



Typical first year courses



SAMPLE FIRST YEAR PROGRAM

A well-prepared student would generally take the following program the first year:

FALL

PHYS 601 (3) - Theoretical Dynamics
PHYS 604 (3) - Mathematical Methods
PHYS 622 (4) - Quantum Mechanics I

SPRING

PHYS 603 (3) - Statistical Physics
PHYS 606 (4) - Electrodynamics
PHYS 623 (3) - Quantum Mechanics II

Advanced courses



	201201	201208													
normal grad courses		s13	f12		s12		f11		s11		f10		s10		
	601	mechanics			32	Yakovenko			35	Hassam			32	Cohen	
	603	statistical physics	20	Einstein			37	Einstein			45	Fisher			43
	604	mat physics			40	Hassam			43	Drake			36	Drake	
	606	E&M	25	Hassam			33	Drake			31	Bedaque			31
	615	Nonlinear Dynamics											15	Givan	
	622	quantum I			46	Levin			49	Bedaque			50	Bedaque	
	623	quantum II	38	Ji			36	Galitskiy			41	Galitskiy			27
	624	qft			27	Chacko			23	Chacko			18	Agashe	
	625	many body	12	Kirkpatrick			7	Kirkpatrick			16	Kirkpatrick			19
other courses															
	685	research electronics	13	Coplan			6	Coplan			9	Coplan			22
	675	relativity, gravitation, cosmology			18	Tiglio			10	Tiglio			15	Buonanno	
	703	nonequilibrium stat mech	24	Jarzynski							23	Einstein			
	704	stat mec													
	711	symmetry							15	Gates					
	715	chaotic dynamics			18	Ott			25	Ott					25
	721	AMO I			12	Campbell & Porto			14	Campbell & Porto			17	Tiesinga	
	726	rotations													4
	731	Solid State Survey			18	Appelbaum			9	Appelbaum			11	Anderson	
	732	solid state survey II													15
	741	nuclear physics					6	Ji							
	751	El. Part. Survey			9	Eno			8	Eno			10	Eno	
	752	el. Part II: theory		Agashe			6	Agashe			7	Agashe			10
	761	plasma survey I			6	Drake							27	Hassam	
	762	plasma survey II	9	Drake							10	Drake			
	828Q	special topics amo II		Taylor and Monroe											
	832	solids							10	Levin					
	838A	special topics solid state exp surfa	2	Einstein, Cullen											
	838C	special topics nanophysics	25	Greene, Paglione											
	851	advanced field theory	18	Sundrum											
	879g	gravity waves	6	Buonanno											
	798I	superconductivity			13										
	798L	biophysics			6										
	838A	surface physics			1										
	838C	Superconductivity seminar			18										

Foundations and Frontiers



<i>DATE</i>	<i>SPEAKER</i>	<i>TITLE</i>
Jan. 30	William D. Phillips NIST and UMD Physics	Atomic Molecular and Optical Physics
Feb. 6	Michelle Girvan UMD Physics	Non-Linear Dynamics theory
Feb. 13	Victor Yakovenko UMD Physics	Econo-Physics
Feb. 20	Alberto Belloni UMD Physics	High Energy Physics (LHC)
Feb. 27	Daniel Lathrop UMD Physics	Non-Linear Dynamics experiment
Mar. 6 (at 5:30 PM)	Jordan Goodman UMD Physics	Particle Astrophysics Note special time
Mar. 13	Ki-Yong Kim UMD Physics	Laser/Plasma Physics
Mar. 20	SPRING BREAK	
Mar. 27	Crystal Senko UMD Physics	Graduate Student at UMD
Apr. 3	Alessandra Buonano UMD Physics	To Catch a Wave: The Hunt for Ripples in the Fabric of Space-Time Gravity
Apr. 10	Thomas Cohen UMD Physics	Quarks, Hadron, and Nuclei
Apr. 17	Johnpierre Paglione UMD Physics	Condensed Matter Experiment
Apr. 24	Zackaria Chacko UMD Physics	Elementary Particles Theory
May 1	Arpita Upadhyaya UMD Physics	Biophysics

Deadlines



SUMMARY OF DEADLINES FOR FULL TIME STUDENTS

Qualifying Examination

First Attempt - End of First Year

Third Attempt - one year after first attempt

Preliminary Research Presentation

One year after passing qualifying examination

Ph.D. Candidacy

Four years after entering program (Physics Department)

Five years after entering Graduate School (Graduate School Rule)

MS Degree

Five years after entering program

Ph.D. Degree

Four years after candidacy

Qualifier Free Try also allows during their first year
(on entering or in Jan.)

Org chart 2013



1. CONTACTS FOR INFORMATION

Dr. Sarah Eno	Associate Chair for Graduate Education (Advising, Requirements, Appeals, etc.)	Room 4335, x57179 eno@umd.edu
Dr. Ted Einstein	Chair of the Graduate Committee (Requirements, Appeals, etc.)	Room 2310, x56147 Einstein@umd.edu
Ms. Donna Hammer	Assistant Director, Student Services	Room 1120C, x55979 dhammer@umd.edu
Ms. Jane Hessing	Academic Program Specialist (Forms and Requirements)	Room 1118, x55980 jhessing@physics.umd.edu
Ms. Linda O'Hara	Academic Program Specialist (Graduate Admissions, Textbooks, Room Reservations)	Room 1120, x55982 lohara@physics.umd.edu
Dr. Douglas Hamilton	Chair of Teaching Assistant Committee (TA Assignments)	Rm. 3201 CSS Bldg., x56207 dch@umd.edu
Ms. Lorraine DeSalvo	Director of Administrative Services (TA Office Assignments)	Room 1109, x55948 desalvo@umd.edu
Dr. Orozco and Dr. Hassam	Coordinator of "Foundations and Frontiers" lectures	