

Ph.D. Qualifying Examinations

General rules: All students seeking a Ph.D. are required to attempt the Written Qualifying Examinations after their first complete academic year; they are required to have passed all four examinations before beginning their third academic year. Each exam may be attempted at most twice* (see footnote below). Part-time students are not subject to the timetables above. The lowest passing score is 60%.

Exam details: The four exams consist of two common exams (common to all tracks) and two track-specific exams (for each track). All exams are offered in August; some track-specific exams (e.g., exams that are administered by the ECE department) may also be offered in January.

The exams that are common to all tracks are:

- Electromagnetics (1.5 hours, based on PHYC511 *or* the ECE555/ECE561 sequence)
- General Optics (3 hours; based on PHYC/ECE463 *and* PHYC476L)

The track-specific exams are:

Optical Sciences track

- Advanced Optics (1.5 hours; based on PHYC/ECE 554.)
- Lasers (1.5 hours; based on PHYC464 or ECE464)

Photonics track

- Semiconductor Optical Materials & Devices (based on ECE 570; this exam is administered by the ECE department)
- Semiconductor Physics (based on the ECE471/ECE572 sequence; this exam is administered by the ECE department)

Imaging Science track

- Stochastic Processes (based on ECE541; this exam is administered by the ECE department)
- Digital Image Processing (based on ECE533; this exam is administered by the ECE department)

Exit-examination requirement for MS Plan 2a: The Ph.D. qualifying examination will satisfy the exit-examination requirement for students enrolled in MS Plan 2a.

Grading out of the qualifying exam: The exam is waived for students who earn an average GPA of 4.0 or greater on *one* of the three sets of *four* OSE-required core courses depending upon the student's concentration of choice:

- **Optical Science track:** PHYC/ECE463, PHYC511 *or* ECE561, PHYC/ECE464, and PHYC/ECE 554
- **Photonics track:** PHYC/ECE463, PHYC511 *or* ECE561, ECE 570, and ECE 572
- **Imaging Science track:** PHYC/ECE463, PHYC511 *or* ECE561, ECE 533, and ECE 541

* PLEASE NOTE THAT THE ELECTROMAGNETICS, GENERAL OPTICS, ADVANCED OPTICS, AND LASER EXAMS ARE OFFERED ONLY ONCE PER YEAR. THUS, IF YOU WISH TO HAVE TWO ATTEMPTS AT THESE EXAMS, YOU MUST SIT FOR THE EXAMS BEFORE YOUR 2ND YEAR BEGINS.