Committee Handbook

Brown University
Department of Physics

Gang Xiao, Chair

July 2016

Department of Physics
Committees

Astronomy Coordinator

Description:

The Astronomy Coordinator is responsible for coordinating and supervising all aspects of the Astronomy program, facilities, and equipment. In addition, he/she will respond to questions from the community and Ladd board.

Areas of Responsibility:

- Coordinate the scheduling of labs for astronomy courses which have a lab component (currently PHYS0220, PHYS0270, PHYS1250 and PHYS1270, plus freshman seminars), including organizing the graduate and undergraduate teaching assistants and supervising the laboratory training sessions run by the astronomy lab technician. Resolve scheduling conflicts between classes for those semesters (typically the fall semesters so far) where multiple classes seek to use the same equipment.

- Meet weekly with the astronomy lab technician, course instructors, lab TAs and undergraduate assistants to discuss upcoming laboratories and training and to uncover problems with the equipment and lab organization.

- Supervise maintenance and improvement of the Barus & Holley observatory telescope and associated equipment.

- Coordinate with the astronomy lab technician in developing new laboratories and maintaining the astronomy lab room.

- Serve as the Department point of contact for community questions regarding astronomy.

- Serve on the Ladd advisory board.

Colloquium/Seminar

Description:

The Colloquium Committee is in charge of selecting, inviting, and hosting weekly physics colloquium speakers during the academic year. The colloquia offer an excellent opportunity to expose the Department to a broader University community and to attract new students to join the Department of Physics. They also help the incoming graduate students to see the "big picture" of cutting-edge physics activities in various areas and decide on their Ph.D. topics and the research groups to join to pursue thesis research.

Areas of Responsibility:

It is their responsibility to ensure broad selection of speakers and make sure that all the research areas in the Department are well represented. In addition, the Colloquium Committee has to ensure that the speakers are aware that they are invited to give a colloquium accessible for first-year graduate students with little background in the particular area of physics exposed in the talk. Seminar-like talks are not acceptable as a colloquium, but the Committee should encourage the colloquium speakers (time permitting) to give a special seminar targeting an auditory of experts in addition to the colloquium.

Additionally, the Colloquium Committee is in charge of selecting the annual Arthur O. Williams speaker. The Arthur O. Williams lecture exposes broad directions in physics to a campus-wide audience and is usually given by a renowned scientist, widely recognized internationally. Previous recent speakers included several Nobel Laureates: Wolfgang Ketterle, Martin Perl, Steven Chu, Wolfgang Ketterle, Frank Wilczek, Steven Girvin, Bernard Sadoulet, Horst Stormer, Lenny Susskind, Paul Grannis, Joseph Taylor, Nigel Goldenfeld, Steven Koonin, Harald Hess, and John Ellis. Traditionally, the Arthur O. Williams speakers are "rotated" between core research areas represented in the Department.

Activities/Timelines:

- The Chair of the Committee convenes meetings (about 2 each semester), suggesting 2-3 physicists for colloquium invitation.

- The Committee's work starts in mid-summer, as soon as we receive the assignment from the Department Chair. This is necessary because we needed to secure speakers for September. The Committee's work ends in mid April, after all colloquium talks and visits are arranged.

- The Committee acts on a number of issues: 1) Debate and agree on the total number of talks for the academic year; 2) Debate and agree on the fields in which the speakers are invited from; 3) Volunteer to be hosts to colloquium speakers.

Computer Committee

Description:

The Department Computer Committee is responsible for making recommendations to the Chair concerning the general direction of computing in the Department of Physics. The Committee is composed of faculty members representing the several research areas in the Department, and staff members who support departmental computing.

Areas of Responsibility:

- Work to ensure that appropriate computer resources support the research and teaching mission of the Department.
- Make recommendations to the Department Chair regarding long-range plans for departmental computing resources, including servers, desktop machines, peripheral devices, changes and upgrades to operating systems and the network.
- Recommend ways to enhance the security of these resources.
- Coordinate the annual distribution of the computer allocation funding for equipment for faculty, staff, and students.
- Interact with CIS as needed to address problems and concerns as they arise.
- Oversee short-term priorities as determined by the departmental staff.

Activities/Timelines:

- Begin to meet shortly after the start of the school year.
- Approve ongoing recommendations that will be implemented by the technology staff support.
- Ensure purchases of computing equipment follow the guidelines of CIS.

Concentration Advisor

Description:

The Concentration Advisor is the main contact point between undergraduate concentrators and the Department. The role of the Concentration Advisor is to advise students on program choices, to inform them of options, and to approve their program of study for their physics concentration. The concentrations over which the Department of Physics has oversight are the Physics AB and ScB and associated tracks. In addition, the Physics Concentration Advisor has co-advising responsibilities with respect to Engineering-Physics and Physics & Philosophy.

Areas of Responsibility:

- Advise all junior and senior concentrators on course choices and electives to ensure that they meet the requirements of the degree. For juniors and seniors changing their concentration course selections, the Concentration Advisor also approves the online concentration forms the students file with the Registrar.

- Meet with all sophomores intending to declare a concentration in Physics and its associated tracks. The Concentration Advisor consults with the advisors in Engineering and Philosophy on the program of study for students in the interdepartmental programs. The Concentration Advisor approves the proposed program of study using the Dean of the College's ASK online system.

- Meet with concentrators to discuss concentration credit for courses taken elsewhere (for transfer students or students studying abroad), sign pre-approval forms for abroad study students and approval forms once they get back. Note that the Department's Undergraduate Affairs Coordinator handles Physics course credit approval for non-concentrators.

- Discuss options for alternate courses and adjudicate on equivalent credit for students wishing to substitute courses in their concentration.

- Working together with the honors advisor, meet with junior concentrators in the fall to help them plan their senior thesis work (this needs to be done in the fall so students can apply for UTRA's. The Department's fall poster party is a very useful venue for juniors to learn about research opportunities).

- Monitor the progress of students in Physics 1410, focusing on those students who are in danger of failing the course and thus not progressing towards completing the concentration.

- Act as faculty advisor to the DUG, developing new leadership and helping to facilitate programming.

- Revise the undergraduate pages of the Department's website as required.

- In the middle of the spring semester, meet with the Undergraduate Affairs Coordinator to go over the transcripts of seniors to confirm that they are making satisfactory progress to the degree.

- Complete and sign the degree clearance forms for the Office of the Registrar.

- Along with the Honors Coordinator, attend as many senior thesis presentations as possible.

- Work with the Honors Coordinator to make recommendations to the Chair regarding the recipients of the undergraduate prizes to be awarded at Commencement,

- At the end of the school year, review the COGNOS report of degree recipients and confirm its accuracy.

- Shake the hands of undergraduate AB and Sc.B. recipients during the graduation ceremonies.

Activities/Timelines:

- Labor Day: Attend (or arrange for another faculty member to attend) along with a few select undergraduate concentrators the Academic Expo, a Freshman Orientation event for promoting the academic offerings at Brown. Coordinate with and get materials from the Undergraduate Affairs Coordinator. Include course descriptions for that year's PHYS110 offering as well as PHYS0270, Intro to Astronomy.

- September-October: Discuss alternate courses and study abroad plans with juniors.

- October: Attend (or arrange for another faculty member to attend) the annual Sophomore Concentration Fair with a few select undergraduates. Coordinate with and get materials from Undergraduate Affairs Coordinator.

- October: Meet with seniors who need to fill out new plans of study forms.

- October: Meet with juniors during an evening session to discuss applying to graduate school. The chair of our Graduate Admissions Committee, as well as a handful of our first-year graduate students, is invited to present their insights.

- January-February: Work with the Undergraduate Affairs Coordinator to check grades of students in Physics 1410 and contact students accordingly.

- March: Meet with sophomores to fill out and approve concentration forms. Meet with Undergraduate Affairs Coordinator to review senior transcripts.

- March-April: Work with the Undergraduate Affairs Coordinator on the departmental plan for STEM, the invitation-only program intended to increase matriculation of talented STEM students at Brown. Plan to provide a 5-minute department overview as part of the faculty panel the day of the event (mid-April) and also to escort attendees and their parents and join them for refreshments if possible, along with undergraduate concentrator volunteers.

- April (and November if there are any mid-year completes): Complete and sign the degree clearance forms for the Office of the Registrar.

- April-May: Work with the Honors Coordinator and the Undergraduate Affairs Coordinator on the optimal timing and location of the senior thesis presentations.

- May: Confer with Honors Coordinator to determine recommendations to Chair for undergraduate Commencement awards.

- May: Confirm degree recipients; attend graduation ceremony.

Curriculum Committee

Description:

The Department Curriculum Committee is responsible for making recommendations concerning the undergraduate and graduate course offerings and undergraduate concentrations. The Committee is composed of faculty members representing the several research areas in the Department.

Areas of Responsibility:

- Consider proposals for new undergraduate concentrations (throughout academic year).
- Gather information about courses (enrollment figures, student questionnaires, etc.) and meet with faculty to learn about the state of the curriculum (throughout the academic year).
- Gather and review syllabi for each semester's core offerings to ensure integrity of the core.
- Meet with concentrators and graduate students to discuss the curriculum (on occasion as needed).
- Review existing courses and recommend changes to the syllabus, textbooks, and content (throughout academic year).
- Make calls for proposals for new courses at the undergraduate, graduate, and mixed undergraduate/graduate levels, including first-year seminars (beginning of the fall semester).
- Make recommendations regarding the consolidation of existing courses (throughout academic year).
- Make recommendations regarding emerging areas or disciplines that might require new courses (throughout academic year).
- Make recommendations regarding joint course offerings with other departments such as Engineering (throughout academic year).
- Make recommendations regarding the timing of course offerings and course numbering (throughout academic year).
- Communicate with the College Curriculum Council (CCC) regarding course proposals and numbering (as needed).

Activities/Timelines:

- Meet monthly to review issues.

Diversity Officer

Description:

Each Search Committee is required to have a Diversity Officer who cannot also be the Chair of the Search Committee. The Diversity Officer must be a tenured member of the faculty and is expected to take an active role in identifying women and minorities who qualify for the position. The Diversity Officer is also charged with ensuring compliance with affirmative action guidelines in all phases of the search and with writing the portion of the interim pool report that addresses the women and minority applicants. The Diversity Officer should act during the search as advocate for candidates from protected groups who are being considered for elimination from the pool.

The Diversity Officer should assist the Search Committee in carrying out its responsibilities to develop a broad and diverse candidate pool and as a liaison to the Institutional Diversity and Inclusion Office during the search process.

Areas of Responsibility:

- Ensure compliance with diversity guidelines in all phases of the search and with writing the portion of the interim pool report that addresses the women and minority applicants.

- Evaluate all steps of the search process in terms of the goals and principles of affirmative action, including insuring that the position is widely advertised and that the Search Committee does not unconsciously engage in discriminatory practices.

- Contact the University agency, when necessary, throughout the search process for advice and assistance to ensure a diversified pool of applicants and adherence to all related University policies and Government regulations and laws.

- Participate in all aspects of the hiring process and serve on the Search Committee.

Activities/Timelines:

- Review advertisements to ensure appropriateness and consistency with vacancy announcement.

- Review the Application Screening Form.

- Assist with development of interview questions on appropriateness of all questions.

- Assist with the compilation of the Applicant Flow Analysis.

- Assist the Chair to certify to the Institutional diversity and Inclusion Office the efficacy of the above named forms to obtain necessary approvals.

- Monitor the discussion of candidates after interviews to ensure that job related factors are the only ones considered in determining the finalists and that those factors are evenly applied.

- Prior to the final recommendation for hire, review any concern regarding the selection process with the Institutional Diversity and Inclusion Office, who shall determine the appropriate action to be taken.

- At the conclusion of the search, work with the Search Committee Chair to provide a completed report to the Institutional Diversity and Inclusion Office to document that the approved Hiring Plan was followed.

First/Second Year Advisors

Description:

Faculty who serve as freshman advisers have a group meeting with the new students the day before fall classes begin. This is followed on the same day by a series of individual meetings with the students. Faculty are assisted by a Meilkejohn advisor who is arranged by the Office of the Dean of the College. There are also a regular series of meetings with the advisees over the course of the next year. Students may choose to keep the same advisor during their sophomore year.

Graduate Admissions

Description:

The role of the Graduate Admissions Committee (GAC) is to follow a very detailed process of reviewing graduate applications for acceptance into the physics graduate program. It is time sensitive and involves University protocols established by the Graduate School.

Areas of Responsibility:

- Work closely with the Graduate School & the Student Affairs & Programs Manager and follow established timelines.
- The committee members review the applications and rank them.
- The committee meets on a continuous basis to select applicants.
- Recommend to the Chair the decisions for TA and Fellowships offers.
- Recruit selected applicants by phone, email, Skype, Google video-chat, and hosting visits.
- Work with Student Affairs & Programs Manager to plan and host the Grad Admits Open House.
- Follow up with those who have not responded to an offer.
- Continue to meet/monitor until the final list of acceptances is confirmed.

Activities/Timelines:

Throughout the year, but peaking in the Fall, the Student Affairs & Programs Manager handles all email inquiries regarding application questions, application fees, where to send information, applications, minimum scores, etc. S/he will pass on any questions to the Graduate Admissions Committee Chair (GACC) that s/he is unable to answer due to specific questions regarding research, academic requirement, etc. In the Fall, the GACC and the Student Affairs & Programs Manager review the information on the department webpages regarding Graduate Admission to make sure it is accurate and updated for the current cycle.

Applications for admission are submitted electronically through CollegeNET. The application cycle opens in September with a deadline of the Monday after winter break. The Student Affairs & Program Manager will provide access for all committee members to all applications in CollegeNET.

The GACC schedules a meeting with the Committee in November to discuss a schedule of upcoming meetings and possible visit dates for prospective graduate students. The Department hosts a recruitment event called Grad Admits Open House (GAOH), the date for which is to be determined by the GAC with faculty input considering new admission timelines/guidelines from the Graduate School. Other factors considered in scheduling this day are March Meeting, Spring Break, and peer institution open house dates.

In November, the Department Chair works with the GACC and the Student Affairs & Programs Manager to complete the Target Number Worksheet which uses prior years' yields to determine the coming year's target number of incoming students and the number of offers to be made to yield that number; this is then submitted to the Graduate School for approval. The GACC then evaluates the previous year's success rate in yield per research area and the current projected funding available in order to determine target numbers for each area of research.

The reading/grading is undertaken by the committee through January. As soon as possible, the GAC members might like to identify excellent candidates and make a decision on their offers of admittance. This should be followed up with communication to these applicants. Committee members should continue to review applications and meet to make decisions in a coordinated effort until completion.

The GACC meets with the Department Chair to discuss decisions made by the GAC. Once the Department Chair approves decisions, the Student Affairs & Programs Manager enters them electronically into CollegeNET and notifies the Graduate School that s/he has done so. The Graduate School then reviews the decisions. Once the decisions have been approved, applicants are notified electronically that a decision on their application has been rendered and is available for them to view in CollegeNET. Applicants are able to accept or decline an offer of admission immediately but have until April 15 to make their decision. The Student Affairs & Programs Manager also drafts and sends a congratulatory email from the Department Chair to all of those to whom offers were extended outlining the terms of, and indicating our hope that they will accept, our offer.

In late March/Early April, the GAC hosts the GAOH and requested individual visits of admitted students. The Student Affairs & Programs Manager monitors offer responses (accepts/declines and no replies) in CollegeNET and informs the GACC of such. The GACC follows-up with, or assigns a Committee member to follow-up with, individual students who haven't replied. As April 15th approaches, careful monitoring of replies and communication between the Student Affairs & Programs Manager, the GACC and the Department Chair is essential. If the yield is unsatisfactory, the Department Chair and the GACC must make a decision regarding the department's position on this and whether negotiating with the Graduate School is in order.

Once all decisions have been finalized, the Student Affairs & Programs Manager creates for the GACC and the Department Chair a list of incoming students including potential area(s) of interest, citizenship, etc.

April 15th is the deadline for acceptance of all offers of admission and financial support. All decisions regarding admission – either by students or by programs – are not officially binding until this date. Also, the Graduate School requires **official** TOEFL or IELTS scores on all international students whose native language is not English and who did not earn a degree at a US college or university or in an English-speaking country where English was the language of instruction. **There are no waivers or exceptions to this rule.** If an international student who is offered admission does not have their official score, their admission is 'conditional' per the Graduate School (i.e. 'your admission is conditional upon receipt of your official TOEFL or IELTS score report').

Graduate Advisors

Description:

The Committee is chaired by the Department's Director of Graduate Studies (DGS) who serves as the Department's official liaison to the Graduate School. The Department's Student Affairs & Programs Manager provides staff support for this Committee.

Areas of Responsibility:

- Provide individual advising to first-year graduate students & to second year and beyond students still unaffiliated with a research advisor.
- Provide recommendations to the Department Chair regarding the nomination of students for special fellowships and prizes (such as dissertation year and Galkin fellowships and thesis prizes).
- Provide recommendations to the Department Chair regarding the status of students who are not in good standing.

Activities/Timelines:

First year advising

The first year graduate advising program aids the students by providing steady academic advice and guidance toward finding good research matches. A principal aim of the first-year advising program is to help students select a program of courses that will ensure rapid fulfillment of the core requirements and provide an introduction to the research area of interest. A typical first year student will take PHYS2030, 2040, 2050, 2060, and 2140; while it is desirable to take PHYS2010 as well during the first year, this may not be possible due to enrollment limits. The remaining course or courses can be chosen from any of the allowed advanced courses. At least two of these advanced courses have to be chosen from the 2000 level courses offered by the Department of Physics. The rest can be from offerings of other departments, subject to the approval of the DGS. For students entering from 2013 and later students are required to take a "breadth" course (i.e. an advanced course outside of the student's primary research area). Reading courses can only be counted towards the advanced course requirement upon approval by the DGS, who will consult with the reading course supervisor. In some cases, students will be advised to take advanced undergraduate courses to make up for deficiencies in their preparation. Students with weak math backgrounds should be advised to take ENGN2010, the Engineering/Physics math course.

The Advising Committee members meet with their advisees four times during the first year of graduate study:

1. Orientation (September)
2. Prior to Fall preregistration and after the department poster session. (November)
3. First week of spring semester (January)
4. Prior to Spring preregistration (April)

The advisor reviews and discusses the student's course program, monitors his/her progress, and advises and reports on issues such as student performance, qualifying

exam timing, suitability for applying for external funding, etc. In addition, the advisors provide help with selecting the research area of interest and getting associated with a research advisor by the end of the first year.

The advisor can grant a conditional waiver of core courses, but final approval can only be granted by the DGS after the student has demonstrated proficiency in the relevant subject area on the Qualifying Examination. The advisor emails a brief report to the Student Affairs & Programs Manager and the DGS specifying which courses have been conditionally waived and indicating any special circumstances or concerns that warrant attention by the DGS.

After the first semester, a student who has done graduate work before coming to Brown may request transfer credit for such courses, provided their content does not duplicate course work at Brown, subject to a limit of eight courses (PhD) or one course (ScM). Although a given course taken elsewhere may qualify both for a credit transfer and a waiver of one of this Department's core courses, this is not necessarily so:

--- A waiver excuses the student from one of the Department's required courses but does not contribute to either residence or tuition requirements.

--- A credit transfer reduces both of the latter, but may have no effect on the Department's specific course requirement.

The DGS determines whether a waiver or credit transfer is warranted.

During the spring preregistration meeting, the advisors pay special attention to the course selection for the following fall, ensuring that the students complete their core requirements and properly select advanced courses.

Second year advising

The DGS reviews the status of all second year students at the beginning of their second year, in particular, their progress in completing the core requirements. Final approval of course waivers are granted at this time based on the student's performance on the Qualifying Examination. Those students who have yet to attach to a research advisor/group are assigned to new advisors, who meet with them until they find a suitable research match.

Fellowships and prizes

The DGS solicits nominations from the Physics faculty for dissertation fellowships, the Galkin Fellowship, and any other departmental fellowships. These nominations are then evaluated by the Graduate Advising Committee and recommendations are forwarded to the Department Chair for a final decision. Typically the top-ranked student for a dissertation fellowship will be offered the Department's Galkin Fellowship.

The Graduate School notifies the DGS of calls for nominations for Graduate School and University thesis prizes. The DGS solicits the faculty for nominations for these prizes as well as any departmental prizes to be awarded. The Department Chair makes the final decision regarding the Department’s nomination of candidates for all prizes.

Other duties of the DGS

- Monitors progress of third-year students toward completing the Preliminary Examination.
- Signs transfer of credit forms for graduate coursework done at other institutions.
- Signs the final completion of degree requirements form before a student's defense.

Relevant sections of the "Notes on the Graduate Program in Physics"

Members of the Graduate Advising Committee may find the following sections of the Notes helpful as they advise students.

Good Standing

A student will be in Good Standing if he or she:

- Passes three approved courses each semester if a Teaching Assistant, or four courses if holding a Fellowship, after two semesters of graduate study at Brown; then passes or is excused from taking the remainder of the "core" courses by the end of four semesters of graduate study at Brown and achieves the following core course grade record: no N.C.'s and at least 50% B's or better by the end of two semesters and no remaining N.C.'s or I's and 50% B's or better by the end of four semesters.

- Passes the Qualifying Exam and receives faculty approval to continue a graduate career in Physics by the end of his or her fourth semester of graduate study at Brown.

- Establishes a plan for financial support with a research advisor who can guide his or her Ph.D. research effort within two semesters of passing the qualifying exam or by the start of his or her fifth semester of graduate study, whichever comes first. The relationship with the research advisor is expected to remain through the student's Ph.D. study. This relationship and the associated plan of support must be endorsed by the Department Chair.

- Passes the Preliminary Oral Exam by the end of the sixth semester of graduate study at Brown.

- Satisfactorily performs any teaching and/or research duties.

Preliminary Examination

- The aim of this exam is to evaluate the student’s ability to understand and orally convey a physics research topic of current interest.

- The Preliminary Examination must be completed by the end of the sixth semester.

- At least two weeks prior to taking the Preliminary Examination, a student submits an abstract to a three person faculty committee, whom they have chosen in consultation with their research advisor by the end of the **second year**. This

committee should include the research advisor. The abstract provides a brief description (approximately one typed 8-1/2 x 11 pages in length) of the topics that the student will present and in which they are willing to be tested during the Examination. The topic may be in the area of the student's research or may represent a specific research paper, provided its subject is dealt with in sufficient generality, perhaps preceded by an appropriate introduction formulated by the student.

- The first forty minutes of the Examination is devoted to a prepared presentation by the student. He/She should expect questions, based upon his/her graduate course work and relevant to the topic under discussion.

- A two-thirds favorable vote is necessary to pass. The Examination may be retaken as needed.

Qualifying Examination

- The goal of the qualifying exam is to evaluate whether a student's understanding of fundamental general physics is adequate for success in independent physics research.

- This is normally taken at the start of the second year. It may be taken in the Spring of the first year by prepared students (permitting an earlier start on research) with permission of the DGS.

- The format consists of a written exam given on a single day.

- The exam is based on material from the advanced undergraduate courses through material covered in the first year graduate core courses PHYS 2030, 2040, 2050, 2060, and 2140.

- The exam consists of 5 pairs of problems in Classical Mechanics, Electricity and Magnetism, and Statistical Mechanics and Thermodynamics, and two pairs of problems in Quantum Mechanics. A student may answer one of each pair of the problems, and thus may submit answers to a total of 5 problems.

- Each problem is graded out of 10, with 6 considered a passing grade.

- A student who obtains a grade of 6 or greater on every problem passes outright. Otherwise, each student's case will be considered individually by the full faculty.

Honors Coordinator
Senior Thesis Advisor
SIGMA XI Department Representative

Description:

For students to qualify for Sc.B. **with Honors** they are expected to complete a senior thesis during their final year. They will receive a course code (PHYS1990) credit during one semester (typically fall), although it is not atypical for them to spend nearly two semesters working with a faculty member on the material. If the thesis work requires a full year's work, then with the agreement of the student's thesis advisor, the student can register for PHYS1980 (Undergraduate Research in Physics) in the spring semester. In rare cases, the PHYS1990 course can be substituted for an equivalent course in a related field (for example, when the thesis is supervised by a professor in another department).

Areas of Responsibility:

- Managing everything to do with Senior Theses.
    - The Honors Advisor will poll all faculty and senior concentrators early in the fall semester to get a working list of students doing senior theses. This should be crosschecked against all students who have registered for PHYS1990. The reason this is done early in the fall is to give students who have not found an advisor a chance to catch up.
    - The Honors advisor has Banner access to all current concentrators' records. The Undergraduate Affairs Coordinator is able to extract from Banner the relevant information for current concentrators to assist the Honor's Coordinator with this and other tasks.
    - The Honors Advisor (working with the Undergraduate Affairs Coordinator) will make sure the web pages associated with senior theses are maintained and updated.
    - The student's supervisor is the ultimate arbiter of whether the thesis is satisfactory – the Honors Advisor acts more as an administrator in this respect.
- Determining nominations for Sigma Xi.
- Determining Honors designation recipients for Commencement.
- Nomination of Commencement Prize recipients (in conjunction with Concentration Advisor)
- The Undergraduate Affairs Coordinator provides invaluable assistance with the administration associated with all of the above tasks, including notifying students of deadlines and other communication regarding senior theses and honors, scheduling senior thesis presentations, checking GPAs for both Sigma Xi and Honors as needed, and coordinating the undergraduate Commencement prize process.

Activities/Timelines:

September: Contact seniors and faculty to construct the list of likely thesis students. If any students intend to do a thesis but do not have an advisor, meet urgently with them to steer them towards an advisor. Make sure that students are either signed up for PHYS1990 or plan to sign up in the second semester.

November-December: Before students leave for the break, arrange a 15-30 minute meeting with the thesis students to go over the timeline for the spring semester. This also serves as a last check that everyone has a thesis project!

Early February: Meet with senior Sc.B. students as a group to discuss the progress of their project and advise them on their progress.

Early March: Meet with students to address concerns about research progress and to remind them of the upcoming deadlines. Traditionally, the provisional title of the thesis is due at the end of the month.

Early April: Meet with Sc.B. candidates one last time to address last-minute questions. The draft of the thesis is due to their advisor typically in mid-April, about 3 weeks before the presentations are scheduled. The near-final version of the thesis is due to the advisor, honors advisor, and Undergraduate Affairs Coordinator roughly one week before the presentations

Early May: Presentations take place during the first week of reading period (see discussion below). The final (electronic) copy of the thesis is due to the Undergraduate Affairs Coordinator two days after the end of the presentations.

Discussion and additional duties:

At the start of the eighth semester, the Honors Advisor and Concentration Advisor should review the GPAs of the Honors candidates. In addition to the thesis requirement, Honors are typically granted based on specific GPA criterion discussed below. You should make sure that none of the candidates are below the required level. If they are, then you need to discuss them with the Department Chair and Concentration Advisor. The candidate may only be eligible for Sc.B. without honors.

It is acceptable for the “final draft” thesis to be in “near-final draft” stage, with some minor revisions still being done for the deadline that occurs before the talks. Modifications are typically accepted until the final deadline that occurs after the talks.

The factors to consider in scheduling the Senior Thesis talks:

1. The talks are spread over a two to three day period, depending on the number of students in a given year.

2. Choose the days based on the schedules/availability of the Concentration Advisor and the Honors Coordinator, who both try to attend as many as possible, if not all, of the presentations;
3. Make an effort to establish the senior thesis presentation schedule by early April in order to be included in the Dean of the College's comprehensive listing of capstone projects (we can be included even if we do not have the schedule set but submit the days and participating students).
4. Talks are typically 30 minutes in length, plus 10 minutes for questions. Less time than this would not do justice to the material in the theses. More time than this can prove to be a significant impediment to attendance.

The talks should be widely advertised (Undergraduate Affairs Coordinator helps with this) with undergraduates, graduates, and faculty, including publicity at the preceding week's lectures. One should try to ask that at least one member of faculty from each of the sub-disciplines be present for all the talks. Faculty attendance is patchy and this needs to be addressed.

Following the student's talk, there may be some discussion of the material presented between the Honors Advisor and the supervising faculty member, but the final say on whether the work is satisfactory is based on the latter's opinion.

The final version of the thesis should be submitted to the Honors Advisor and the Undergraduate Affairs Coordinator in electronic form (PDFs) within a few days of the talks, just prior to informing the Registrar of their satisfactory completion. The theses titles are posted on the Physics web site with the Undergraduate Affairs Coordinator and the Communication Coordinator's help. *Students and faculty should be consulted about whether they want their thesis to be published.* Once this is established, the titles are linked to the theses cleared for publishing.

A memo should be generated for the Registrar (due about a week after reading period starts) recommending those Sc.B. candidates (decided by Physics Concentration Advisor) who also satisfy requirements for Honors (This requirement includes a satisfactory senior thesis, talk and also GPA [see below]).

The Honors Advisor (with the Undergraduate Affairs Coordinator's help) should check for any students that qualified earlier than the current semester and ensure that they are on the correct lists for Commencement.

COMMENCEMENT PRIZES

Three to five senior prizes are typically awarded by the Department of Physics at Commencement: one or two for the Lindsay Prize, one or two for the Mildred Widgoff Prize, and 1 for the Smiley Prize. These need to be communicated to the Department Chair at least two weeks before Commencement so the names can be included in the printed Commencement program and checks can be processed.

The Honors Advisor should caucus with the Concentration Advisor and specific thesis supervisors to determine award recipients to recommend to the Chair:

- The Lindsay Prize is given to an outstanding graduating senior (one or more), based on performance both on coursework and on research and thesis. Typically, we are looking for people with outstanding GPAs.

- The Mildred Widgoff Prize is given to an outstanding graduating senior (one or more), based on performance specifically on the thesis/talk. This award is designed to allow us to reward interesting/innovative/exciting research work.

- The Smiley Prize is awarded to an undergraduate that TAs astronomy courses and does a senior thesis in Astronomy. The Astronomy Coordinator establishes if there is a candidate.

While canvassing, the Honors Coordinator should think about whether we have a potential Apker Award (APS) nominee this year – the standard of the thesis needs to be very high for this, including original work of a publishable quality.

SIGMA XI (ACTION REQUIRED IN FEBRUARY)

The Honors Advisor typically also deals with the Sigma Xi nominations for graduates and undergraduates. The advisor will have to attend a lunch in the 3rd week of February to discuss the nominations from various departments. The week prior to this meeting, lists should be submitted to Tina Trahan (in Engineering), via Undergraduate Affairs Coordinator, for the Physics nominations.

There are four (4) classes of Sigma Xi nominations that are made.

1. Election to Associate Member for Undergraduate students.
2. Election to Associate Member for Graduate students
3. Election to Full Member for Graduate students
4. Election to Full Member for Faculty and Alumni

Qualifications for Associate Membership fall into two categories:

a. Seniors who have demonstrated a high level of competence in science.
b. Graduate students who have completed three semesters with quality grades.

    I. Qualifications for *seniors* are that they have a grade point average of 3.4 or better in the sciences. Twelve semester courses in sciences, including courses at the elementary level, two courses beyond the elementary level in a science outside the student's department or 3 courses, (including courses at the elementary level, in two or more sciences outside the student's department), or involvement in a research project under supervision for at least one semester. These

qualifications are intended to be guidelines and not to be interpreted rigidly. Candidates with lower grade point average may, for example, be elected based on research activity and candidates with higher grade point averages may, for example, not be elected because of relatively poor performance in advanced courses. The Departmental Elector is expected to have specific knowledge of the student's academic performance gained, perhaps, through written communication from other instructors, discussion within a department, or first-hand knowledge, etc.

II. Qualifications for *Graduate Students* nominated for *Associate Membership* are:
    1. Completion of three semesters of graduate work.
    2. Quality grades (A or B).

    For individuals who do not meet the typical and traditional qualifications listed above, it is requested that the Elector explain in writing on the nomination form why the Department considers the individual to be a desirable candidate for membership.

III. Qualifications for *graduate students* nominated for *Full Membership* and *Faculty Members* are described in detail of the By-Laws, below is an excerpt.

    a. Any professor, instructor, or other member of staff of Brown University who has shown noteworthy achievement as an original investigator in some branch of pure or applied science.

    b. Any graduate student of Brown University who, judged by his actual work of investigation, has exhibited an aptitude for scientific research (see note 1 below).

    c. Any graduate student of Brown University of not less than five years' standing, who has shown noteworthy achievement as an original investigator in some branch of pure or applied science, as an alumni member.

    d. Any professor, instructor, or investigator connected with a neighboring educational, scientific, or professional institution not having a Chapter, who would otherwise be eligible for active membership, is eligible as a non-resident member.

    e. Any associate within five years after graduation on the condition prescribed in (2) of this section.

Usually eligibility for election to Full Membership is obvious. Special notes regarding qualifications, discretionary power of the board, summary sheets, and other information are listed in the file packet in Student Affairs Coordinator's office.

NOTES ON GPA

For Honors, we typically require a GPA in math and physics courses of 3.25 or better. For marginal students special attention should be paid to their grades on advanced physics courses and the verbal recommendations of the lecturers on those courses. The GPA is not a firm requirement and should be discussed with the Department Chair for marginal candidates that show particular strengths in physics.

Can we have someone with Sc.B. but no honors (i.e. fails on GPA)? - Yes (this has been less common recently, but has been known to occur). You should discuss the candidate with the Department Chair and the Concentration Advisor.

For Sigma Xi, GPAs are calculated taking all (hard) science and math courses into account. A threshold of 3.4 is typically used. Other courses that we take into account are:

Applied Math
Biophysics
Bio/Neuro
Comp. Science
Engineering
Math
Geology
Chemistry

In addition, the Honors Advisor will look over the transcripts for any courses that may have been transferred, a student participation in a program, work completed at an educational institution or other university that could be equivalent to a course.

Laboratory Instruction Committee

Description:

The Lab Instruction Committee is a faculty/staff committee that will work to improve the quality of education in experimental physics and foster interest in related scientific courses.

Areas of Responsibility:

- Evaluate instruction process and methods used by the teaching faculty, lab physicists and managers and teaching assistants.
- Evaluate interaction among teaching faculty, lab managers, and teaching assistants.
- Examine existing experiments in various labs for upgrades, maintenance, or replacement.
- Develop proposals for the Department Chair for capital spending in acquiring new instruments and capabilities.

Activities/Timelines:

- Quarterly Committee meeting.
- Timely communication with the Department Chair; timely response to inquiries from faculty/staff/students on relevant issues.

Library Representative

Description:

The Library Committee maintains communication with the librarian in charge of physics at the Science Library in order to ensure that books, journals, and electronic resources needed by the Department are available. It also oversees local Department of Physics collections including those in the fifth floor library, and collections donated to the Department.

Public/Outreach Committee

Description:

Major responsibility of the Committee is to produce a Department newsletter. The Department newsletter is distributed via email and is posted on the department's webpage.

Areas of Responsibility:

- Determine the items that should be included in newsletter.
- Coordinate the items to be displayed on the plasma screen in the lobby.
- Initiate outreach to the Alumni and schedules events.
- Develop talking points for graduate student recruitment.
- Meet with high school students and parents during school visits/tours.

Activities/Timelines:

- Current Committee Chair has copies of all old newsletters, which serve as a guide for what news items should be included. It is important to work closely with department support staff to get newsletter formatted and ready for printing.
- Meetings are held to identify articles for the newsletter.
- Each member plays a role in soliciting and writing articles for the newsletter.
- Reviews suggestions that can be displayed on the plasma screen in lobby.
- Will develop a plan for alumni out-reach to include an event during commencement week.

Department Events:

- Department Poster Session – November.
- Degree Day – middle of the spring semester, between February to April.

Qualifying Examination Committee

Description:

The purpose of the Qualifying Examination is to test whether a student has mastered core physics areas sufficiently well to carry out a successful Ph.D. program in the Department of Physics at Brown University. This Committee will execute the process for administering the Qualifying Examination.

Areas of Responsibility:

- The Qualifying Exam Committee (QEC) shall be comprised of at least four faculty members appointed by the Department Chair to staggered two-year terms.
- A second-year member appointed by the Department Chair shall chair the QEC.
- The QEC is empowered to solicit questions for the Qualifying Examination from faculty members (who are also expected to grade them) and, at their discretion, to formulate questions and delegate their grading to faculty members who are not on the QEC.
- The QEC shall carry out such other duties connected with the Qualifying Examination as are specified in Departmental rules.
- The QEC Chair works with two administrative staff members in carrying out his/her duties:
    - The central Communications Coordinator assists with all tasks associated with the creation of the exam:
        - Providing information about the faculty assignment history and current sabbaticals;
        - Providing logistical support for the process of soliciting and refining questions;
        - Compiling the actual exam from the approved questions and obtaining final approval from the QEC Chair and the Department Chair;
    - The Student Affairs & Programs Manager (SAPM) assists with all tasks associated with the administering, grading, and dissemination of results of the exam:
        - Providing copies of the exam and exam booklets for the administering of the exam.
        - Establishing and announcing the information (date, time, location) about each exam to QEC, faculty and students;
        - Informing QEC of those who have requested permission or who are required to take each exam;
        - Communicating schedule and rules for grading exams to question writers/graders and providing, collecting, and recording the requisite materials and information;
        - Communicating schedule and rules for grading exams to students; distributing and recollecting their graded exams and grade sheets;

- Administering the regrade requests;
- Maintaining the grade spreadsheet
- Scheduling QEC and Faculty meetings to discuss/determine results of each exam and providing supporting materials for these meetings;
- Conveying the Faculty's decision on students' exam performance to students for Department Chair;
- Recording results electronically in GSIM and sending required department written notification of results.

Activities/Timelines:

Examinations are scheduled on the Tuesday before Fall semester classes begin and the Friday after Spring semester classes begin. The post-qual faculty meeting to discuss results and decide outcomes is scheduled a week following the exam at 3:30PM. *See Academic Calendar Year on Office of Registrar's website.*

Review legislation enacted and amended. See Qualifying Examination section in *Notes on the Graduate Program in Physics*

OCTOBER AND MARCH
- Determine date and venue for the next exam.
- Determine question writers for the next exam.

NOVEMBER/DECEMBER AND APRIL/MAY
- Meet, review, suggest revision(s), and finalize the questions for the exam.

AUGUST/SEPTEMBER AND JANUARY
- Sign-up to proctor the exam.
- Meet after the exam to discuss results and make pass/fail recommendations to faculty.

Rules and Resources:

APPENDIX: The Qualifying Examination

I. Composition and Duties of the Qualifying Exam Committee

1. The Qualifying Exam Committee (QEC) shall comprise four faculty members appointed by the Departmental Chair to a one-year term.

2. The QEC is empowered to solicit questions for the Qualifying Examination from faculty members (who are also expected to grade them) and, at their discretion, to formulate questions and delegate their grading to faculty members who are not on the QEC.

3. The QEC shall carry out such other duties connected with the Qualifying Examination as are specified in Departmental rules.

II. Rules Concerning the Qualifying Examination

A copy of the following rules shall be sent to each graduate student of Physics upon entering Brown University.

1. The purpose of the Qualifying Examination is to test whether a student has mastered core physics areas sufficiently well to carry out a successful Ph.D. program in Physics at Brown University.

2. Timing of the Qualifying Examination

(a) The Qualifying Examination will be scheduled near the first week of classes each autumn and spring semester.

(b) Students are ordinarily expected to take the exam at the beginning of their third semester. However, a student may request a postponement or ask to take the Examination earlier. The Department Chair will make the decision on such requests after consultation with the Director of Graduate Studies (DGS) and the student's research supervisor if there is one.

(c) A student who fails the exam must take it again at the next sitting or withdraw from the PhD program. In unusual circumstances, the Departmental Chair may allow postponement of this second sitting beyond the fourth semester. A student who has decided to leave after completing work for a Master's degree may take the Examination at the usual time but, upon request, can be excused by the Departmental Chair.

(d) Normally, the graduate career in Physics at Brown University of any student failing the Examination twice will be terminated by the September following the second failure. However, in the event of two failures of the Examination a student may petition, in writing to the Departmental Chair, for a third chance at the next sitting of the Examination. The decision on this petition will be made by vote of the Departmental faculty, acting upon a recommendation made by an ad hoc committee consisting of the Departmental Chair and the Advisor of Graduate Studies. Factors to be considered in reaching this decision are (i) the student's overall performance in courses, research and the previous Qualifying Examinations, (ii) timing of those Examinations, and (iii) comments of the research supervisor if there is one. A third failure will cause the student's graduate career in Physics at Brown University to be terminated, not later than the next September following that failure.

3. Format of the Qualifying Examination

In January 2003, the Physics Faculty adopted the current format for the Qualifying Exam. The questions in the Examination will be based on the prescribed core courses for the Ph.D. requirement (except for the laboratory course). The intent of this exam is to test for understanding and knowledge over a broad range of topics. Consequently, the best preparation is a comprehensive review including reading and problem solving. Every effort is made to make this exam fair and at the appropriate level of difficulty. However, the questions will not necessarily be related to those given in previous exams or to questions or problems in textbooks. As a guide to the wide range of material that should be mastered, a list of suggested textbooks may be found on the department website.

The qualifying examination is a written exam given on a single day. The exam will be based on material from the advanced undergraduate courses through material covered in the first year graduate core courses PHYS 2030, 2040, 2050, 2060, and 2140. Specifically, it will consist of pairs of problems in Classical Mechanics, Electricity and Magnetism, Statistical Mechanics and Thermodynamics, and two pairs of problems in Quantum Mechanics. A student is expected to choose one problem to solve from each pair and thus should submit answers to a total of 5 problems. Each problem is graded out of 10, with 6 considered a passing grade. A student who obtains a grade of 6 or greater on every problem passes outright. Otherwise, the full faculty will consider each student's case individually.

4. Faculty Evaluation of the Examination Results

The Faculty will render decisions on whether individual students have passed the Qualifying Exam soon after completion of the exams.

The Faculty may also, if it deems appropriate, instruct the Departmental Chair to take steps concerning the future graduate career in Physics at Brown of any student whose status is under review. Such steps may include the requirements that additional courses be taken or that a Master's thesis be written or that financial aid be discontinued.

5. Availability of Examination Results

As soon as possible after tabulation of the results, students shall be notified of their grades on the individual written Examination questions.

Students shall be afforded the opportunity to inspect their graded booklets. Students may submit comments on the exam or its grading to the QEC for their review.

6. Notification of Examination Details

The QEC will set, prior to each exam, the specific timetable for the exams, their grading, the availability of booklets and the Department Faculty Meeting. Students taking the exam will be notified well in advance of this timetable as well as of all other relevant details such as where and when the graded booklets will be available and the specific details as to their inspection.

7. Eligibility for Examination

Ordinarily only graduate students registered in the Department of Physics may take the Qualifying Examination. Other students who wish to take the Examination may do so at the discretion of the Chair of the Department of Physics.

8. Review of Procedures II-1 through II-7

Annual reviews and revisions of all these procedures may be undertaken in succeeding years when the need appears, provided that prompt written notice of any changes is given to all graduate students affected.

Safety Committee

Description:

The Safety Committee will provide a forum for matters related to Departmental safety, regarding safety procedures and practice within the Department, maintenance of safe behavior, preparations and actions in research and teaching, and full compliance with the various regulations and guidelines which protect and promote safety. To make recommendations for actions in this area, as necessary, to the Department Chair and to the wider University Safety network. They will work closely with EHS and the University Safety Committee. Physics is required to have a Safety Committee, because of our active involvement in both research and teaching activities which pose potential risk.

Areas of Responsibility:

- The Chair of the Committee serves as the liaison between the University Safety Committee and the Department Chair.
- He/she attends quarterly meetings with the University Safety Committee.
- Keeps the Department abreast of news and developments regarding laboratory safety.
- Calls and holds Departmental Safety Committee meetings twice a year.

Activities/Timelines:

Meetings: at least once a semester, with coordination with EHS, and more frequently as issues arise internally in Physics or from the University Safety Committee.

Membership:

Goal of membership is to have representatives of all the Department's constituents and the appropriate infrastructure. EHS staff member(s) are included and generally attend meetings.

- Chair a faculty member active in research and knowledgeable about safety matters and procedures.
- Committee staff - person who maintains material related to safety procedures and records minutes of all Committee meetings; appropriately this staff person is also the liaison with other department members regarding compliance with training and other required safety procedures.
- Graduate student.
- Department laboratory staff representative.
- Other faculty and/or research fellow.

- EHS staff member(s).

Duties: Chair and Lab staff representative should be members of the University Safety Committee, and together with EHS staff bring issues for discussion from that forum to the Department Safety Committee. There should be opportunity for the Committee membership to raise other issues as seem appropriate for discussion. The Committee should communicate with all Department members as needed to fulfill their mission and should encourage input and feedback on safety issues.

Shop Coordinator (JEPIS)

Description:

The JEPIS Committee is composed of a faculty representative from Physics, one from Engineering and one from the Center for Advanced Materials Research (CAMR). The Head of the Instrument Shop is also nominally part of the Committee process.

Areas of Responsibility:

The Committee evaluates and provides recommendation on all aspects of shop operations and finances. The Committee works to ensure that the shop is meeting the research needs of the Department of Physics, Engineering, CAMR and the University. Specifically, the Committee looks at and makes recommendations on the following:

- Demand for shop services and fulfillment of demand.
- Overall health of finances.
- Maintenance and expansion of facilities and capabilities.
- Safety.
- Courses for undergraduate and graduate students.
- Log range priorities and plans.

Activities/Timelines:

- This Committee meets at the beginning of the school year and determines the hours to be allocated for shop work in accordance with the requests made by faculty.
- At least twice a year the Physics Committee meets with CAMR and Engineering and discusses the performance of the shop and the Department's needs.

Undergraduate Affairs Coordinator

Description:

The Undergraduate Advisor is the first point of contact for high school students interested in visiting the Department of Physics or speaking with a faculty member. He/she also, is the faculty member to answer questions about transfer credits, AP credit, etc.

Areas of Responsibility:

Interpret and give advice on the following:

- Consult with undergraduates at all levels when they inquire and seek claiming AP physics credits. Meeting 1-2 students per week on this issue year round.

- Physics course equivalency consultation and certification. This applies to students who take physics courses elsewhere, including summer courses and study abroad. Two to three cases per week year round, each involving 2 or 3 meetings (pre-approval and approval forms need to be signed at two stages); more at the beginning and end of a semester.

Activities/Timelines:

- Attending concentration fair.
- ADOCH, STEM, and Open House events.