

Policy and Guideline Manual

Department of Physics
Old Dominion University



Last Revised: January 9, 2024

Table of Contents

| | |
|--|-----------|
| PREFACE | 3 |
| FACULTY POLICIES AND GUIDELINES | 4 |
| Policy and Guidelines for Appointment, Reappointment and Rank of Adjunct, Research, and Jefferson Lab Faculty..... | 4 |
| Policy on Evaluation of Teaching / Portfolio Review..... | 9 |
| Guidelines on the Criteria for Evaluation of Scholarly Activity and Research..... | 12 |
| Policy for Mentoring and Evaluation of Lecturers..... | 14 |
| GRADUATE PROGRAM POLICIES AND GUIDELINES | 16 |
| Policy on the Graduate Student SPEAK Test..... | 16 |
| Policy on Graduate Student Teaching..... | 17 |
| Policy on Counting an USPAS TA toward the Departmental Graduate Teaching Requirement..... | 18 |
| Guidelines on Fulfilling the Teaching Requirement for Students Entering on an RA..... | 19 |
| Policy on MS Students Who Wish to Enter the PhD Program..... | 20 |
| Policy on 600 Level Elective Courses Taken Outside the Physics Department..... | 21 |
| Guidelines on Administration of the Written Candidacy Examination..... | 22 |
| Policy on Graduate Student Access to Completed Written Candidacy Examination..... | 23 |
| Guidelines on the Composition of the Dissertation Committee..... | 24 |
| Guidelines on the Composition of the MS Thesis Committee..... | 25 |
| Policy on the Graduate Oral Exam..... | 26 |
| Policy on Evaluation of Graduate Teaching Assistants..... | 28 |
| Policy on Graduate Student Support..... | 29 |
| Policy for the annual Ph.D. student travel awards..... | 31 |
| Policy on Graduate Course Transfers, Waivers, and Credit by Examination..... | 32 |
| Nominal Schedule of Graduate Elective Courses..... | 33 |
| UNDERGRADUATE PROGRAM POLICIES AND GUIDELINES | 34 |
| Policy on Exemption from Introductory Labs..... | 34 |
| Guidelines on Senior Thesis..... | 35 |
| Policy on Undergraduate Selection to Sigma Pi..... | 42 |
| Policy on Undergraduate Level Challenge Exams in the Physics Department..... | 43 |
| Policy on Credit for the Advanced Placement Exam..... | 44 |
| Guidelines on the CERTIFICATE OF CAREER EXPERIENCE: Physics..... | 45 |
| POLICIES ON AWARDS AND SCHOLARSHIPS | 46 |
| Policy on Selecting Recipients for the Diederich Scholarship..... | 46 |
| Policy on Selecting Recipients for the Dominion Scholarship..... | 47 |
| GENERAL POLICIES AND GUIDELINES | 48 |
| Policy on Travel Reimbursement for Colloquium Speakers/Visitors..... | 48 |
| Policy for Listing Conference Presentations in Digital Measures (a.k.a. the Faculty Activity System or “FAS”)..... | 49 |
| APPENDIX: OUTDATED POLICIES | 50 |
| Policy for Creating Course Numbers for AP Credit..... | 50 |
| Nominal Schedule of Graduate Elective Courses..... | 51 |

PREFACE

This Physics Department Policy and Guideline Manual is intended to provide a reference of Department policies and procedures for information of all stakeholders. It is recognized that special circumstances, not directly addressed by the Manual, are likely to arise from time to time. The Manual is not meant to constrain the Department's ability to react in those circumstances and it is understood that deviations from policies or guidelines, made in good faith by the Chair or by faculty of the Department, may be necessary on occasion.

FACULTY POLICIES AND GUIDELINES

Policy and Guidelines for Appointment, Reappointment and Rank of Adjunct, Research, and Jefferson Lab Faculty

Revision Date: February 3, 2017; October 6, 2016; 2011

Approved by: Faculty

I. Introduction

The department presently has three categories of faculty that are not on full-time, tenured or tenure-track positions (non-regular faculty members):

- A) Adjunct Faculty
- B) Research Faculty
- C) Jefferson Lab Faculty

Category A) is further subdivided into

- Aa) Adjunct Faculty - Primary Affiliation: Teaching
 - Ab) Adjunct Faculty - Primary Affiliation: Research
- as listed on the departmental website.

The following policies and guidelines govern the initial appointment, initial assignment of rank, renewal/continuation of affiliation, and promotion in rank for all four types of faculty.

II. General Guidelines

- 1) All initial appointments of faculty in one of the 4 types described above require a vote of the full regular faculty, to be conducted by the Department Chair. It is expected that the Chair will take the result of this vote and any comments into consideration, but the ultimate decision is his or hers (in consultation with Jefferson Lab where appropriate).
- 2) If the initial rank of an appointment is not at the level of (Adjunct/Research/Jefferson Lab) Assistant Professor, the relevant Department Promotion and Tenure Committee will review the candidate's credentials and propose the appropriate rank to the Department Chair. This determination should be made according to the rules outlined below.
- 3) All non-regular faculty members listed in I. should be reviewed (at least) once every 3 years and their appointment either continued or terminated. The primary responsibility for this review and the final decision lies with the Department Chair (in consultation with Jefferson Lab in the case of Jefferson Lab Faculty). It is expected that the Chair will solicit the comments and votes (as appropriate) of all regular faculty members as input before making his or her decision.
- 4) Any promotion in rank, either as part of the 3-year review (see 3) or initiated on request by the faculty member in question, will have to be considered by the relevant promotion and

tenure committees and follow the rules outlined below. The Faculty Handbook policy on “Promotion and Tenure,” paragraph III, applies to both Research Faculty and Jefferson Lab Professors and requires the same steps as those for tenure-track faculty.

5) For each initial appointment, a letter of nomination is required (by any regular faculty member). This letter should also contain a proposal for the initial rank of appointment, and document how the candidate fulfills the criteria required for this rank (see below).

6) For the purpose of determining the appropriate rank of an appointment or promotion, faculty members falling under the categories I.Ab), I.B) and I.C), i.e., all research-oriented faculty, should be judged against the same criteria regarding their research productivity as regular faculty considered for the same rank (as required by the Faculty Handbook). All appointments at or promotions to the rank of associate or full professor require, at the minimum, a current CV with research accomplishments and other evidence of scholarly achievements as appropriate. For Research and Jefferson Lab faculty (candidates), i.e. categories I.B) and I.C), three letters of recommendation (one of which may be the letter of nomination for an initial appointment) are required. For Adjunct Faculty (category I.Ab), at least one letter of recommendation is required (which may be the letter of nomination). All research credentials are to be judged according to the “Guidelines on the Criteria for Evaluation of Scholarly Activity and Research” in this Manual. It is expected but not required that each candidate for a position at the rank of Associate or Full Professor will give a departmental colloquium. It is the expectation that a second promotion (from Associate to Full Professor) after a first promotion from Assistant to Associate Professor ordinarily occurs no earlier than 6 years after the first promotion.

7) For the purpose of determining the appropriate rank of an appointment or promotion for Adjunct Faculty with Primary Affiliation: Teaching (category I.Aa)), the criteria regarding teaching (and service, if appropriate) for regular faculty considered for the same rank should be used (as required by the Faculty Handbook). All appointments at or promotions to the rank of associate or full professor require, at the minimum, a current CV with teaching accomplishments, a portfolio review of relevant teaching material (either at ODU or at other institutions), and student opinion surveys or teaching evaluations from peer observations. It is the expectation that a second promotion (from Associate to Full Professor) after a first promotion from Assistant to Associate Professor ordinarily occurs no earlier than 6 years after the first promotion.

III. Policies and Procedures specific to Jefferson Lab Professors

Existing Framework

The position of *Jefferson Lab (Assistant, Associate) Professor* was authorized by the 1992 Memorandum of Understanding (MOU), as amended by the 1997 Memorandum of Understanding, between Thomas Jefferson National Accelerator Facility and Old Dominion University. The section of the 1992 MOU pertaining to this position (pp. 4-5) is reproduced below. Note that the original name *Continuous Electron Beam Accelerator Facility*, the acronym *CEBAF*, and the title *CEBAF (Assistant, Associate) Professor* have been changed,

respectively, to *Thomas Jefferson National Accelerator Facility, Jefferson Lab, and Jefferson Lab (Assistant, Associate) Professor*, in accord with the 1997 MOU. Note also that there is no longer any upper limit on the number of Jefferson Lab (Assistant, Associate) Professors that can be appointed.

Model for Jefferson Lab Professorship:

1. This position is a joint appointment to the faculty of the Old Dominion University Department of Physics of a person who is a regular member of the SURA/Jefferson Lab scientific staff. It may be made at any of the three professorial ranks, and the person appointed will be designated as Jefferson Lab (Assistant, Associate) Professor.
2. The salary and fringe benefits of the incumbent will be paid entirely by SURA/Jefferson Lab.
3. A Jefferson Lab (Assistant, Associate) Professor is not eligible for tenure at Old Dominion University.
4. The initial term of this joint appointment is for three years. The appointment is renewable subject to the Contingencies stated above and continued satisfactory performance by the incumbent.
5. The incumbent shall enjoy full rights and privileges of a faculty member of Old Dominion University, except for those situations in which the Faculty Handbook of Old Dominion University limits eligibility to full-time regular faculty members or tenured faculty members.
6. The incumbent has the right to participate in the faculty business of the Department of Physics with a vote equal to that of a regular faculty member, except as limited by the Faculty Handbook.
7. A Jefferson Lab (Assistant, Associate) Professor will spend up to one-third of his or her time on the duties of a professor in the Department of Physics in support of the Department's Jefferson Lab-related program. These duties may include, but are not limited to, teaching a lecture course, directing the research of a student, or performing research or other work.
8. The incumbent shall have the right to submit grant proposals to external agencies through normal Old Dominion University channels and be either principal investigator or co-principal investigator on such projects as may be thereby funded. All funds for direct or indirect costs associated with such grants would accrue to Old Dominion University. However, should such grants be received, SURA/Jefferson Lab retains the right to negotiate with Old Dominion University for a portion of the incumbent's salary and benefits costs to be paid by grant funds.

9. The Chairman of the Department of Physics will consult with the incumbent each year about his duties as Jefferson Lab (Assistant, Associate) Professor and will evaluate his performance in that capacity. At a time designated by SURA/Jefferson Lab, the Chairman will provide SURA/Jefferson Lab a written evaluation of the incumbent's performance as Jefferson Lab (Assistant, Associate) Professor for its use in evaluating his or her overall performance as a SURA/Jefferson Lab staff member.

The 1992 MOU further specifies (p. 6) that the number of authorized Jefferson Lab Professorships is **three**. On April 17, 2006, the number was amended to **six** by adding three Jefferson Lab Professors in the Accelerator Group:

The number of authorized Jefferson Lab Professorships will be increased to six (6). In addition to the three existing positions in nuclear physics (experiment or theory), three new positions will be created in the area of accelerator physics.

Finally, the limit of 6 total Jefferson Lab faculty has been discontinued.

The 1997 MOU clarified the model above by making the following amendment:

- (D) Item 5. of the section originally entitled Model for CEBAF Professorships shall be amended to read as follows (with additions to or omissions from the original set in bold italics):

The incumbent shall enjoy full rights and privileges of a faculty member of Old Dominion University, except for those situations in which the Faculty Handbook of Old Dominion University, *hereinafter known as Faculty Handbook*, limits eligibility to full-time regular faculty members or tenured faculty members. *In particular, the incumbent shall not vote on questions of hiring, promotion, and tenure for regular faculty members or serve on a Tenure and Promotions Committee within the University.*

Although the (amended) MOU cited above defines and authorizes the position of Jefferson Lab (Assistant, Associate) Professor, it does not provide a detailed procedure for appointing someone to that position. Such a procedure is proposed below:

Procedure for Selection of Jefferson Lab Professors

Policy Guideline: It is to be understood that a nomination for the position of Jefferson Lab (Assistant, Associate) Professor should be made only if it has a high probability of being approved. Consequently, it is understood that the nominator, the candidate, the Chair of the Department of Physics, and the candidate's Jefferson Lab supervisor should consult informally among themselves and that the Chair of the Department of Physics should consult informally with selected senior members of the tenured faculty of the Department of Physics before such a nomination is made.

- (1) A regular tenured faculty member of the Old Dominion University Department of Physics must nominate a candidate for the position of Jefferson Lab (Assistant, Associate) Professor. This nomination must be made in a memorandum to the Chair of the Department of Physics that states the candidate's concurrence, names the candidate's administrative supervisor at Jefferson Lab, and cites the reasons for and expected benefits from the recommended appointment. That memorandum must be accompanied by the candidate's current *curriculum vitae* and at least two additional letters of reference commenting on the research credentials of the candidate.
- (2) The Chair of the Department of Physics must approve the nomination in order for the appointment process to proceed. The Chair indicates approval by formally notifying the regular faculty of the Department of Physics that such nomination has been made and by providing the candidate's credentials for inspection.
- (3) The candidate must be invited to campus to give a Colloquium talk and to meet broadly with the regular faculty of the Department of Physics and University officials, as appropriate, just as a candidate for appointment to the regular faculty would.
- (4) The Promotion and Tenure Committee must make a determination of the appropriate rank for the candidate. The Chair of the Department of Physics will present that committee with the candidate's letter of nomination and the additional two or more letters of reference, current *curriculum vitae*, and any other materials that might have a bearing on the issue of rank. The letter of nomination or the Department Chair should provide a suggested rank, and the relevant Promotion and Tenure committee will be selected on the basis of that rank.
- (5) The Chair of the Department of Physics must present the faculty of the Department of Physics a recommendation that the candidate be appointed to a Jefferson Lab Professorship at the approved rank. (It is expected that the Chair will be prepared to discuss the candidate's expected duties and any resources that might need to be committed to the performance of those duties.) That recommendation must be approved by at least a two-thirds majority of the regular faculty of the Department of Physics.
- (6) The Chair of the Department of Physics will forward the approved recommendation to the Dean of the College of Sciences for approval by the University administration and the Board of Visitors.
- (7) A Jefferson Lab Assistant/Associate Professor can be considered for a promotion in rank either during a regular 3-year review or at any time upon request. The appropriate procedure outlined in II.6) will be applied to consider such a promotion.

Policy on Evaluation of Teaching / Portfolio Review

Revision Date: August 13, 2016, February 2, 2006

According to the Faculty Handbook, the evaluation of faculty teaching must include a “Peer Review of Portfolio.” The frequency of portfolio review is dictated as follows:

“Reviews of portfolios should be conducted every five years for tenured faculty, every three years for senior lecturers and every year for non-tenured faculty, lecturers, instructors, and adjunct faculty. More frequent review may be requested by the faculty member, the chair or the dean. All courses taught during the review period should be included in the portfolio.”

The Chair establishes a schedule for portfolio review and faculty submit their portfolio to the Chair. The portfolio is then evaluated by a department committee:

“The full-time faculty of each department, through an election, are responsible for establishing the procedure for the selection of evaluation committees as well as the process for evaluation. Each portfolio must be evaluated by at least three individuals. Under this policy it is possible that a department might elect to have a separate committee for each faculty member, to assign the evaluation of all faculty to a standing committee, or to designate a specifically elected committee for the purpose of portfolio evaluation.”

The Physics Department has approved the following selection process:

- The Committee will be comprised of three tenured Physics Faculty.
- The Physics Chair will initially nominate three faculty members for election to the Committee.
- Physics Faculty may nominate additional faculty for the Committee.
- The Committee membership will be selected by a vote of the Faculty.
- Committee elections will be held annually.

The portfolio should be submitted to the Chair in electronic form. The period of review will be specified to the faculty member by the Chair when the Chair requests a portfolio for review. It has been the tradition in the Physics Department that portfolios cover the prior 3 years. Materials from only the most recently taught section of each course taught during the period covered by the evaluation should be included.

The portfolio should contain the following materials and be formatted as indicated below. Note that, “student opinion surveys are considered in the annual review and are not a part of the teaching portfolio review.”

1) Brief Summary

A summary list of all courses taught during the performance period. For each course include the following info:

- Name and number of the course
- Semester and Time when the course was taught
- Credit hours
- Number of students
- The overall Instructor Effectiveness Score (Question 10) from the Student Opinion Surveys
- If website is used to post information – include the web address

Content of the Teaching Portfolio

For all courses provide the following:

- Course Information including Syllabus*
- Representative example of Lecture Notes*
- Homework Assignments and solutions*
- Copy of each Exam including Final and other testing material, if applicable*
- Final grade distribution for each course taught
- (optional) Any additional relevant info, in particular original curriculum development.

*If the same course was taught more than once during the performance period, only one set of these documents needs to be submitted unless significant changes to the format or content were made to the course.

The function of Peer Review of Portfolio is to evaluate teaching effectiveness by an examination of the documents used in instruction. These documents should be arranged in a well-organized.

Suggested Process of Evaluation:

Each committee member will independently review all materials for each faculty member or instructor under review. The materials will be evaluated based on completeness, appropriateness of intellectual level, organization of material, and overall course structure. This assessment will include the suitability of the course materials, including texts used, on-line resources, homework and examinations. The evaluations should take into consideration the overall teaching responsibilities of the person under review, whether the courses are taught by more than one person, including team teaching or graduate teaching assistants, and the size and instructional level of the courses taught. Consideration should also be made of efforts to improve teaching effectiveness, and any measures of success. Note should be taken of any awards or testimonials made recognizing the teaching accomplishments of the faculty

or instructor under review.

The opinions of the Teaching Evaluation Committee will be summarized in an overall report that will be go directly to the Departmental Chair. This report will include summary points based on the evaluation of all submitted materials. The evaluation committee will formulate an overall qualitative evaluation of Outstanding, Satisfactory, or Needs Improvement.

Definitions:

Outstanding: This designation is reserved for truly outstanding teachers, this being reflected through awards or student testimonials, student evaluations, and the quality of the portfolio materials.

Satisfactory: This broad designation is appropriate for the large majority of teachers in the department. It reflects consistently strong, effective overall teaching and solid organization.

Needs Improvement: This designation is reserved for instructors with clearly identifiable problems with their overall teaching performance, including student opinion questionnaires, course materials. It is not appropriate for issues associated with a single course. In this case, specific recommendations for improvement will be offered by the committee to the instructor.

Guidelines on the Criteria for Evaluation of Scholarly Activity and Research

Revision Date: January 19, 2015

Preamble

Any fair and meaningful evaluation of the scholarly and research accomplishments of a faculty member requires a qualitative judgment based on expertise and awareness of the circumstances unique to each subfield. While quantitative data (such as number of publications, citations or total grant money received) may provide useful input for such a judgment, purely numerical scores cannot adequately reflect the quality, breadth and depth of a faculty member's research and scholarly activities. In this document, we list some of the more common indicators for a successful research career, putting particular emphasis on data that represent the explicit or implicit recognition of the faculty member's research excellence by the national and international community of her or his peers. Ultimately, it is the evaluator's task to put these indicators into context and arrive at a proper weighing of all the evidence put forth to arrive at a comprehensive appraisal of the faculty member's scientific scholarship.

Indicators of Research Excellence

As indicated in the preamble, the following list is neither comprehensive nor should it be used for a simple exercise of "checking off" or calculating numerical scores. It merely summarizes some of the major, commonly accepted measures of scientific accomplishments. They are listed roughly in order of importance; however, outstanding achievements in an area further down the list could still be counted as significant indicators of research excellence.

1. Publications in leading, peer-reviewed Physics journals, such as the suite of Physical Review journals, Physics Letters, Nuclear Physics and several others. Other journals, such as Nature and Science, as well as peer-reviewed conference proceedings and books or book chapters (with the faculty member as author or editor) are included, as well. Particular emphasis should be given to articles where the faculty member clearly played a major role in the underlying research, and highly cited articles.
2. Invitations for talks and presentations at professional meetings (conferences and workshops). Particular emphasis should be given to meetings with international or national scope, and to prominent presentations (such as plenary or summary talks). Invited Colloquia and Seminars at other institutions may also be considered.
3. External support for the individual's research, particular from competitive national funding sources like the U.S. DOE, NSF, NASA, DOD and other inter-regional granting agencies and foundations. Success in attracting funds for research leaves, student support, travel and research sponsored by industry or intramural funding sources may also be considered.
4. Mentoring undergraduate and graduate research, in particular as thesis advisor, co-author on publications and P.I. securing financial support for such research.

5. Honors, awards, fellowships, and named prizes as well as other recognition by professional and scholarly organizations.
6. Elected leadership roles in professional societies (e.g., APS division officer) and research collaborations.
7. Peer reviewer of grant proposals and publication submissions, or membership on editorial boards for leading scientific journals.
8. Selection as conference organizer, convener or proceedings editor.
9. Selection for panels advising the federal or state government on scientific issues, or national labs and their governing boards.
10. Tangible results like patents, devices, procedures, software, manuals, textbooks as well as consulting contracts and research sponsored by commercial entities.

Policy for Mentoring and Evaluation of Lecturers

Revision Date: Fall 2023

In considering the mentoring and evaluation of lecturers, it is important to bear in mind the valuable contribution they make to the teaching in the Department. Further, the typical lecturer carries a very heavy teaching load and often teaches the introductory classes with many freshmen, who do not always have reasonable expectations of their instructor. It should be the Department policy not only to monitor the lecturer but also to actively engage in encouraging the lecturer's career development. Ideally, each lecturer should be assigned a faculty mentor to help with his preparation for promotion.

Standards for Promotion to Senior Lecturer or Master Lecturer

Lecturer faculty performance is evaluated across three domains: teaching, service, and professional development. Evidence of excellence can be demonstrated in a variety of ways; therefore, the evidence supporting cases for promotion is expected to vary case by case.

Evidence of high-quality teaching includes consistently favorable student and peer evaluations (i.e., student opinion surveys and portfolio reviews) or improvement over time. Greater weight is placed on peer evaluations because they include analysis of course content materials and provide evidence of proficiency in teaching and pedagogical rigor (e.g., creative and engaging activities, development of original instructional materials, teaching practices informed by data, collaborative teaching, and appropriate rigor in assignments). Applicants should demonstrate growth and development, including pedagogical improvements and innovations (e.g., an abbreviated teaching philosophy linked to changes in assessment, engagement, etc.).

Evidence of high-quality professional service includes meeting expectations for essential department duties (such as advising) and active participation in faculty governance (e.g., faculty meetings, contributing to searches, etc.). Additional substantive service at the Department, College, University, or professional level is also encouraged. This may include service on committees, formal contributions to recruitment and retention of students, further participation in faculty governance, participation in service activities of professional associations, additional advising activities, and curriculum and program development. Lecturers are not usually expected to mentor undergraduate or graduate students in research projects, but this should be seen as a valued form of service. In particular successfully mentoring students for physics senior thesis projects should certainly be regarded as an important contribution to the teaching portfolio of the lecturer.

In order to be effective in these roles and considering the heavy teaching loads, it is suggested that the number of committee assignments should not exceed three and that if the lecturer has a major advising position that the lecturer should be considered for a course release.

Evidence of high-quality professional development can include a variety of activities, such as membership in relevant professional societies, attending conferences (e.g., research, teaching,

or advising focused), attending teaching-focused workshops or webinars, engaging in research (to deepen/broaden knowledge of discipline-specific content). Professional development focused on disciplinary content knowledge, pedagogy, diversity issues, and advising/mentoring are all valued. It is important to provide compelling evidence of professional development through these kinds of activities, but it is not expected that all possible kinds of evidence listed here are present. Promotion portfolios should make clear how the faculty member has used professional development to strengthen their professional practice.

Evidence for promotion to Senior Lecturer requires proficiency and competence in all domains of teaching, service, and professional development, as well as to exceed expectations in at least one of these domains. Service contributions within the department are sufficient for promotion to Senior Lecturer.

Promotion to Master Lecturer requires continued proficiency and competence in all domains of teaching, service, and professional development. A critical expectation for promotion to Master Lecturer is assumption of leadership roles. This may include chairing committees, taking on administrative functions, and providing mentorship, as well as other leadership roles. Master Lecturers can demonstrate mentorship through their work with junior faculty, adjunct faculty, graduate, and undergraduate students involved in teaching and/or research, faculty teaching a new class, or faculty in other departments. Teaching and Professional Development can include introduction of new pedagogy or new courses.

GRADUATE PROGRAM POLICIES AND GUIDELINES

Policy on the Graduate Student SPEAK Test

Revision Date: April 21, 2020

Non-English speaking graduate students must pass the SPEAK Test within one year of their start of graduate school at ODU. Failing to do so could entail forfeiting departmental financial support. Requests for an extension beyond the one-year limit must be made in writing to the Department Chair for consideration and will be approved only if the request is deemed to be justified.

Policy on Graduate Student Teaching

Revision Date: September 27, 2016

Each graduate student in the physics Ph.D. program is required to gain teaching experience during his/her graduate studies. The minimum teaching requirement for the Ph.D. degree is four “points”: each laboratory session counts as two points, and each recitation session counts as one point. The student can teach any combination of lab or recitation sections to fulfill the four-point requirement.

The student must be ready to begin fulfilling these teaching requirements (including satisfactory performance on the “Speak Test”) no later than the beginning of his/her fourth year of study. Although the student may be asked to grade homework, lab work or exams while on TA appointments prior to the time when he/she has gained approval to teach, such grading will not fulfill any part of the teaching requirement.

Policy on Counting an USPAS TA toward the Departmental Graduate Teaching Requirement

Revision Date: October 21, 2015

Approved: Graduate Program Committee

A student who serves as a teaching assistant (TA) for USPAS will have that assignment count as fulfilling one-half (1/2) of the Departmental graduate student teaching requirement (2 “points”).

A student who serves as a TA at two **separate** USPAS schools will earn 4 points and will have fully satisfied the Department teaching requirement.

Guidelines on Fulfilling the Teaching Requirement for Students Entering on an RA

Revision Date: September 24, 2015

The Department has a teaching requirement for all PhD students. Most students will satisfy this requirement in their first year as a GTA. Some students, however, will start as a GRA upon arrival at ODU. For such students, the teaching requirement should normally be fulfilled no later than the fourth year in the graduate program.

The GPD, in coordination with the Operations Manager, will periodically remind students who still need to fulfill their teaching requirement. The student's advisor will also be notified.

Policy on MS Students Who Wish to Enter the PhD Program

Revision Date:

1. A student who has been admitted into the MS program in Physics at ODU can, at any time, request to be (re-)considered for admission at the Ph.D. level, even if that student was initially not admitted at that level. Any such requests must be made to the GPD, who will be ultimately responsible for the decision taken.
2. No action will be taken on any such requests until after the student has attempted the Written Qualifying Exam for the first time.
3. All graduate students taking the Written Qualifying Exam will be considered for passing at the Ph.D. level (regardless of their status at the time of the exam). Any student failing at the Ph.D. level will also be considered for passing at the MS level. If a student admitted into the MS program passes the Exam at the Ph.D. level, that student will be informed of this fact.
4. If a student in the MS program passes the Written Qualifying Exam at the Ph.D. level and requests to be admitted to the Ph.D. program, his or her request will be considered by the full Graduate Program Committee (GPC) of the Department. If the progress of the student up to that point appears to indicate promise for successful completion of a Ph.D. at ODU, the GPC may grant the request in which case the student will be placed into the Ph.D. program at the beginning of the following semester. The student will have to take all required classes not already passed at the level of "B" or better; however, he/she will not have to retake the Written Qualifying Exam. After all other requirements are met, the student may complete the Oral part of the exam and proceed to candidacy if passed.
5. If the student has already passed the Written Qualifying Exam at the Masters level but not at the Ph.D. level, or completed a MS via the thesis option, the only avenue to be admitted into the Ph.D. track will be a new application package submitted to the Graduate Admissions Committee of the Department. Such an application must demonstrate substantial new evidence that the student is capable of Ph.D. level work, beyond what is already contained in the original application material. Any such application will be considered on equal footing with all other outside applicants to the Ph.D. program in Physics at ODU. The decision lies with the Admissions Committee in this case. If admitted, the student will have to retake the Written Qualifying Exam and pass it at the Ph.D. level to remain a doctoral candidate. All classes already passed with a B or better are counted towards the completion of the Ph.D.
6. A student who takes the Written Qualifying Exam but does not pass at the MS level is ineligible for admission into the Ph.D. Program.

Policy on 600 Level Elective Courses Taken Outside the Physics Department

Revision Date: September 9, 2014

Approval by: Graduate Program Committee

1. 600-level courses taken by physics graduate students in departments other than the Physics Department (for example, in the Chemistry Department) can qualify as an elective.
2. A graduate student must submit a request in writing to the GPC to take a 600 level course outside of the Physics Department and to have it count toward the elective requirement in the Department. The request must be approved by the GPC for the course to count as an elective.

Guidelines on Administration of the Written Candidacy Examination

Revision Dates: May 13, 2021; October 21, 2016

The written Candidacy Examination is given 2 times per calendar year. Normally, it is expected that an incoming Ph.D. student makes a first attempt to pass the Exam at the end of the Spring Semester of the first year at ODU (May). Students who fail the first attempt can retake the exam at the second time (January). Under special circumstances, a student and/or the Graduate Program Director can petition the Graduate Committee to delay the first exam attempt.

The Exam will be administered over two days. When scheduling permits, the Exam will be given over two days followed by sufficient time to permit scheduling a Faculty Meeting to review performance on the Tuesday immediately following the Exam.

The May Exam will be given during the 2nd or 3rd week of May. The Faculty Meeting to review Exam results will be held on the Tuesday of the week immediately following administration of the exam, if possible.

The January Exam will be given during the week immediately preceding the start of the Spring semester. The Faculty Meeting to review the Exam results will be held on the first Tuesday of the Spring semester, if possible.

Policy on Graduate Student Access to Completed Written Candidacy Examination

Revision Date: September 27, 2016; September 29, 2005

Storage of Examination Papers:

All completed Written Candidacy Examination papers will be stored in a locked file under the supervision of the Graduate Program Director for a period of one year after completion of the examination. At the end of that one-year period, those papers will be destroyed.

Graduate Student Access:

- (1) Any student, independent of whether he/she did or did not pass the Written Candidacy Examination, will be granted access to his/her examination papers.
- (2) A graduate student who failed the Written Candidacy Examination on either of the two allowed attempts will be allowed to read his/her examination papers, but only in the presence of a faculty member of the Department of Physics designated by the Graduate Program Director. The student may make his/her own personal notes about the contents of those papers, but under no circumstances will he/she be allowed to make direct copies by any process. The student must make arrangements to read his/her papers directly with the Graduate Program Director.
- (3) A graduate student who is allowed to read his/her examination papers will not be allowed to see any of the grades assigned to his/her work. The faculty member who supervises the student's reading will have access to those grades and will indicate to the student whether his/her performance on a particular problem was satisfactory or unsatisfactory.

Guidelines on the Composition of the Dissertation Committee

Revision Date: September 27, 2016; September 18, 2013

Approved by: Graduate Program Committee

1. The formation of the Dissertation Committee should be within three months of the date of passing the written qualifying exam.
2. A Physics Department dissertation committee consists of five tenured, tenure-track, or adjunct faculty members. Four faculty members (including adjunct professors) will be from within the department and one faculty member comes from outside the department.
3. Of these five faculty members, one member (not to include the advisor) should be from the same area of research as the candidate and another from a related field. For example, for a thesis in Theoretical Nuclear Physics, one of the committee members should be from the Nuclear Theory Group and one from the Nuclear Experimental Group. The remaining internal member should be from a different research direction, such as the Accelerator Physics Group or the Atomic Physics Group.

The complete membership of the Dissertation Committee must be documented on Form D2. Any changes of the composition of the committee must be agreed upon by the student and the GPD and be documented by a new version of Form D2.

Guidelines on the Composition of the MS Thesis Committee

Revision Date: September 27, 2016

Approved by: Graduate Program Committee

The MS Committee should consist of three faculty members from with the Physics Department (Thesis Advisor plus two additional faculty). For cases in which the Advisor is not a member of the Physics Department faculty, the Committee should consist of the Advisor and two additional members who are faculty of the Physics Department.

Any scenario where the above guideline is not applicable will be handled by the Chair of the Physics Department on a case-by-case basis.

The complete membership of the Thesis Committee must be documented on Form M1. Any changes of the composition of the committee must be agreed upon by the student and the GPD and be documented by a new version of Form M1.

Policy on the Graduate Oral Exam

Revision Dates: October 21, 2016; September 18, 2013

Approved by: - Graduate Program Committee

1. The oral exam should be taken within 12 months of the date of the passing of the written exam.
2. Any requests for an extension of the deadline must be made in writing to the Graduate Program Committee.

Format of exam: The Oral Examination is a one-hour presentation given by the student to his/her Dissertation Committee (not including the “external” member) in a closed session. In general, a student’s dissertation advisor, in consultation with the student may choose from 2 possible presentation formats:

- I. A presentation by the student directly on his/her dissertation research.
- II. A presentation on a specific topic that the student has been assigned to investigate for several months.

For either option, the student must write a short paper of 10 or fewer pages, single-spaced, on his/her presentation topic and give it to all members of the Committee at least two weeks before the scheduled date of the examination. The result of the Oral Exam must be documented on Form D3.

After passing the Oral Exam, a student can advance to candidacy. A new Form D3 needs to be filled out to that effect, under the heading “Dissertation Prospectus”.

After a student has advanced to candidacy and has collected the required number of credit hours (to be determined by GPD), they may proceed to the status “ABD” (All But Dissertation). This status is documented on Form D9 and allows the student to enroll in only 1 credit each semester (including summer) until their dissertation defense.

All of the above forms can be obtained from <https://www.odu.edu/graduateschool/forms>.

After advancing to candidacy, all Ph.D. students **must** meet with their full Thesis Committees (including the outside member) at least once every year, for a formal assessment of their progress towards completion of their dissertation project (“Annual Review”). The outcome of these meetings must be documented on Form G10 – RA (Physics), available from Physics Department Headquarters PhysicsDepartment@odu.edu.

Policy on the Dissertation and Dissertation Defense

Added January 31, 2024, for informational purposes:

The acceptance of the Dissertation and the successful Dissertation Defense Examination are the last steps required for the conveyance of the Ph.D. The Dissertation Defense must be scheduled sufficiently ahead of the intended graduation date to allow final revisions and submission to the Dean of the College of Science before *their* deadline. The Dissertation Committee should be provided with a copy of the dissertation early enough for them to evaluate it and provide comments and edits by the time of the Defense.

Required forms:

D3 (Result of Doctoral Examination) – Fill out “Dissertation Defense Examination”, sign by all members of committee.

D5: Doctoral Dissertation Acceptance and Processing

For more information, see <https://www.odu.edu/graduateschool/graduate-student-resources> and <https://www.odu.edu/sci/students/graduate>.

Policy on Evaluation of Graduate Teaching Assistants

Revision Date:

The College of Science requires that TA evaluations should be completed within the first five weeks and first semester evaluations are due in the Associate Dean's office by the eighth week. The Physics Department will conduct evaluations during the fourth and fifth week of classes for first year TAs.

First year TAs will be evaluated twice a year (once every semester), second year TAs will be evaluated once a year (during their fourth teaching semester). Third (and above) year TAs are only evaluated if they are either a candidate to be nominated for one of TA awards or their past performance has shown deficiencies.

Two evaluations are needed for nominating a TA for the Outstanding Graduate Teaching Award (ODU). The deadline for such nominations is usually end of January. In order to have sufficient evaluations for award nominations, the Department will select several candidates for award nomination after the regular evaluations (by the fifth week of classes). Sometime during the last few weeks of classes a second (extended) evaluation for these TAs will be conducted.

Policy on Graduate Student Support

Revision Date: October 5, 2004

Approved by: Physics Department Faculty

The Department of Physics is committed to assisting each graduate student achieve his/her educational objectives. Integral aspects of successful progress toward the Ph.D. are the choice of one's doctoral research topic and the maintenance of steady funding for tuition and personal stipend. The following policy clarifies the commitment the Department of Physics has (subject to available funding) to ensure adequate funding until the student completes the Ph.D., and it clarifies the responsibilities of the student.

The First Two Years

The Department of Physics will normally support a new, incoming student by providing full tuition remission and a personal stipend for the first four academic semesters (normally the fall and spring semesters of the first two years), although the student is encouraged to transfer to grant funding earlier if it is available from his/her research advisor. During the regular academic semesters, students with departmental support are expected to perform teaching assistant duties, usually amounting to 20 hours/week of service, as well as to take required courses. During the first summer, students should do research (6 credit hours) with one of the professors in the Department of Physics who will support the student from a research grant. The Chair will counsel the student as to whether that professor can reasonably be expected to have funding available to support the student after the fourth academic semester and about the consequences of a lack of such funding. Students must be enrolled full-time (normally 9 credit hours) and must maintain a minimum 3.0 GPA to receive support.

It is most beneficial to the students and the faculty if students start their research in the group with which they hope to complete the Ph.D. However, it is possible for students to change research groups, in consultation with the Chair and the respective research advisors, if the new group has appropriate funds to support the student.

By the beginning of the 2nd summer, students should have selected the research group with which they plan to do their Ph.D. research. Students must be aware that continuance of support from then on will depend on the advisor's funding availability and will remain so for the duration of their studies. In other words, each student must find a grant-supported Research Assistant (RA) position (or other fellowship) after the end of his/her fourth academic semester. It is imperative that the student discuss funding sources with a potential advisor before committing to a research area. This is a pivotal decision point and requires the consent of the Graduate Program Director, the proposed research advisor, and the Chair.

Student Evaluation

The faculty of the Department of Physics will evaluate the success of each student's progress towards his/her degree goals, normally in the 4th academic semester. The evaluation will consider qualifying examination results, course grades, research performance, and any other information that may be available. No funding will be available to continue his or her studies if the student is considered by the faculty (and based on the above criteria) to be unlikely to

complete a Ph.D. Under normal circumstances a student who has maintained a GPA of greater than 3.0 and passed the qualifying exam at the higher level, and whose advisor has adequate research funding, will continue to receive funding.

After the First Four Academic Semesters

Under all but extraordinary situations, once a student begins his/her second summer, he/she will be expected to continue with the same advisor until graduation. The Department Chair, the Graduate Program Director, and the Dean of the College of Sciences must all approve a change of advisor. A student may be assigned teaching duties in subsequent semesters by the Chair, as dictated by departmental needs and the student's degree requirements, after consultation with the student's advisor and/or grant PI.

Fellowship Students

Students admitted to the Physics Department on a fellowship to work in a specific research area will be funded by the fellowship for their entire course of study, including the first two years. In order to maintain funding, they must take the required courses, maintain a 3.0 GPA, pass the qualifying exam, and demonstrate an ability and aptitude for research.

Teaching Assistants

All students are required to do some teaching. In order to work as a TA, the student must pass the requirements to teach, in particular the TA institute and, if required, the 'Speak Test.' It is the student's responsibility to attend the GTA institute. Financial support from the Department cannot be guaranteed if a student does not satisfy the requirements to teach. The procedures in this document are for general guidance only and are not intended to conflict with, or supersede, any Old Dominion University regulations governing advanced degree programs.

Policy for the annual Ph.D. student travel awards

Revision Date: Fall 2023

Approved by: Graduate Program Committee

The ODU Department of Physics, through the generous support by the College of Sciences, establishes two semi-annual travel awards in the amount of \$500 to partly defray the expenses for Ph.D students in good standing in the department to attend national or international conferences. This policy specifies the procedure and criteria by which the winners for this award will be selected.

1. Announcements for each travel award will be made at the beginning of the Fall and the Spring semesters.
2. The award can only be given to a student who will present original results of their Ph.D research at a scientific conference.
3. Selection criteria are based on a recommendation letter from the student advisor and the academic and research performance of the student.
4. There is a limit of one travel award per year for each student.
5. The Ph.D advisor of the student must provide the necessary matching funds covering all expenses required for a student to give a presentation at a conference.
6. The final decision of selecting the winner for each travel award will be made by the Department Chair based on the above criteria.

Policy on Graduate Course Transfers, Waivers, and Credit by Examination

Revision Date: 2006

1. Students are normally allowed to transfer up to 12 hours of graduate courses if approved by the Graduate Program Director. The equivalency of such transfer courses to those offered at Old Dominion University is normally determined by the Graduate Program Committee. Requests to determine course transfer equivalency must be submitted in writing to the Chair of the Graduate Program Committee, along with supporting materials. The Graduate Program Committee forwards its determinations to the Graduate Program Director.
2. The Graduate Program Director may waive a required graduate course, normally upon the recommendation of the Graduate Program Committee. The Graduate Program Committee recommends such a waiver if, in the committee's judgment, the student has previous experience equivalent to that to be gained from the course and if the student's interests are furthered by his/her not taking the required course. A written request for such a waiver and supporting evidence must be presented to the Chair of the Graduate Program Committee. The Graduate Program Committee forwards its determinations to the Graduate Program Director. The Graduate Program Director is responsible for placing a written record of all waived courses in the student's permanent records in the Department of Physics.
3. Transfer or waiver of required graduate courses does not exempt a student from responsibility for topics presented in those courses at Old Dominion University that might be included in the Written Candidacy Examination.
4. If the Graduate Program Director approves any course transfer or course waiver other than as stated in this policy, then he/she must make a timely report of that action to the Graduate Program Committee.
5. Credit-by-examination is not allowed for any graduate course offered by the Department of Physics.

Nominal Schedule of Graduate Elective Courses

Revision Dates: October 2020

Approved by: Physics Department Faculty

This updates the 2015/2016 policy found in the Appendix

In order to provide graduate students with a full range of courses needed for a modern graduate education, the Department will attempt to offer elective courses based on the following schedule:

Nuclear Physics track offerings of electives:

| Fall | | Spring | |
|------------------|--------------|-----------------|----------|
| Intro to NPP | Phys 722/822 | Advanced QM | Phys 842 |
| QFT-I* | Phys 871 | QFT-II* | Phys 872 |
| Processes in QCD | Phys 790/890 | Nuclear Physics | Phys 861 |

*available online

Condensed Matter/Accelerator/Atomic track offerings of electives:

| Fall | | Spring | |
|---------------------|--------------|--------------------------------|--------------|
| Accelerator Physics | Phys760/860 | Low Temperature Physics [1] | Phys 760/860 |
| | | OR | |
| | | Condensed Matter I [1] | Phys 724/824 |
| Accelerator Physics | Phys 754/854 | CM and EM in Acc Phys | Phys 859 |
| OR | | | |
| Condensed Matter II | Phys 825 | | |
| Atomic Physics [2] | Phys 727/827 | Atomic & Molecular Physics [2] | Phys 853 |

[1] This would be a NEW COURSE created by combining the existing PHYS 724/824 (Solid State I) and PHYS 760/860 (Low Temperature). We may need a new number for it (or keep 724/824 but change the name and description). It would discuss all aspects of condensed matter, including solids and liquids, ordinary/semi/super-conductors, BE condensates, superfluidity.

[2] This would be a NEW COURSE created by combining the existing PHYS 827 (Atomic Physics) and PHYS 853 (Atomic and Molecular Physics). Because of the name being the same, we could simply name it PHYS 853, but it probably would need to be a bit more on an introductory level. We may need to have a small committee of AMO faculty define this course in detail.

UNDERGRADUATE PROGRAM POLICIES AND GUIDELINES

Policy on Exemption from Introductory Labs

Revision Date: October 12, 2006

At the January 2005 Faculty Meeting it was decided that under certain circumstances, students should be allowed to be exempt from taking the introductory laboratory. The UGC finalized minor revisions to the policy on 10/12/06.

A student can be exempt from introductory labs only under these conditions:

1. A student has received a C or better in the equivalent lab course at another university. The lab course is listed as a separate line item on the student's transcript.
2. A student has taken and received a "P" in ODU Physics 113 or 114.
3. A student has taken the lab already at ODU as part of an introductory physics course (and received a C or better for the entire course) and is now taking a higher level of the same course (for example, Physics 231 after Physics 111).

Note that students will NOT be exempt from taking the lab when:

1. A student is retaking a course for any form of grade forgiveness.

A student who is exempted from the lab shall have his/her grade in the course based solely on the lecture portion of the class and not on any previous lab grade. In all cases a student must sign up for 4 credits. The Department does not offer a 3 credit "lecture only" option.

Implementation (December 30, 2020)

A student who wishes to be exempted from the Introductory Laboratory should make such a request, along with a justification, in writing to the course instructor. The instructor will evaluate the request to see if, based on the criteria above, the student qualifies for an exemption. The instructor will inform the student of his/her findings. If the student is found to qualify for an exemption, the instructor will notify the laboratory support manager and will implement course grading in accordance with the policy above.

Guidelines on Senior Thesis

Revision Date: 28 January 2015 (Cook)

Approved by: Undergraduate Committee, 29 January 2015.

Approved by: Physics Faculty, 03 February 2015.

Introduction:

The Senior Thesis is a capstone experience in which the student works with a physics department faculty member (Research Advisor) on an individual research project. The student has the opportunity to apply knowledge and skills acquired in the classroom to real-life research problems in physics. This research can be done either in on-campus laboratories and facilities or at other scientific institutions in the region where departmental faculty members perform research, such as the Thomas Jefferson National Accelerator Center (TJNAF), the Applied Research Center, or NASA Langley Research Center.

There are two options for completing the Senior Thesis. The first is to complete Physics 499W, which is a 3 credit course taken in one semester, (Fall, Spring or Summer). The second is a two-semester option in which the student takes the one credit Physics 489W in the first semester and the two-credit Physics 490W the following semester. Senior Thesis can also be scheduled during the summer sessions. Successful completion of both Physics 489W and 490W is equivalent to Physics 499W and satisfies both the writing and oral communication upper level general education requirements for physics majors.

The total time commitment required by the student should be commensurate with a senior level three-credit physics course. For completion of Physics 499W or Physics 490W, the student must prepare a written final report (Thesis) which is reviewed and critiqued by their Thesis Committee, and make a public oral presentation on their project to the department on Senior Thesis Presentation Day.

There are three objectives for the Senior Thesis Research courses:

- Provide an independent research experience for the student.
- Teach the student how to write an in depth physics research report, complete with figures, figure captions, table of contents, tables, references, abstract, etc.
- Reinforce material from earlier courses on giving scientific presentations.

Project Topics:

Senior Thesis topics must involve genuine physics, and not just library research. The thesis topic can be experimental, computational, or theoretical. The thesis does not necessarily have to present original research, but, some level of original contribution by the student is strongly preferred and topics should be chosen accordingly. The thesis should represent a significant integration of each student's undergraduate coursework. Normally, the research portion of the thesis project should be chosen so as to be realistically doable in 100-150 hours (8-10 hours per week), thereby leaving time for the student to prepare the oral presentation and written report. The exact timing of the research portion is left up to the advisor, but the scope of the project should be chosen so that the project will be completed in the allocated course time. In preparation for Senior Thesis research, students may elect to undertake independent study with a faculty member, though this is not a prerequisite to Senior Thesis research.

Thesis Committee:

Each student will have a thesis committee consisting of at least three members, including the Research Advisor as chair. The student and their advisor should choose the other members of the committee, keeping in mind that at least one of the members must be from a subfield of physics different from that of the Senior Thesis research. Three committee members must be physics faculty (regular or adjunct). Additional members from outside the department, whose expertise coincides with the research topic, are allowed. The student must ask the other committee members if they are willing to serve on their Senior Thesis Committee. **For students taking the two-semester sequence they must confirm that each committee member is available for the two semesters required to complete the courses.** A list of the Thesis Committee members must be forward to their Research Advisor for approval. The approved list must be submitted to the Senior Thesis Coordinator.

Course Meetings:

Both the one-semester and two-semester Senior Thesis students will meet with the Senior Thesis Coordinator at selected times when e-mail notification of a meeting is received.

General Information:

1. SEMESTER PRIOR TO STARTING SENIOR THESIS:

Project Selection and Registration.

Close to the end of the semester prior to registering for Senior Thesis, the student must contact the Senior Thesis Coordinator to inform of him of their intent to begin Senior Thesis the following semester, and to get a list of projects available. The student must then arrange to meet with prospective Research Advisors to discuss projects of mutual interest. Once an agreement is made, the student will inform the Senior Thesis Coordinator who will issue a course CRN to allow the student to register for Physics 489W or Physics 499W under the Research Advisor's name. This registration process should be completed by the end of the first week of the first semester. The Form for **Intent to Begin Senior Thesis** is available on the website and must be sent to the Senior Thesis Coordinator who will return a list of available Senior Thesis Projects.

2. THESIS COMMITTEE and PROJECT OUTLINE:

Prior to the end of the second week of semester, the student must have selected their Thesis Committee who will help guide the project, examine the written Senior Thesis, and determine the Final Grade for the semester. The makeup of the Thesis Committee is presented above. The student must discuss the makeup of the Thesis Committee with their Research Advisor who must approve the members. The student must also complete the Senior Thesis Project Summary Form and **submit it to their Research Advisor for approval**, and then e-mail it to their **Thesis Committee AND the Senior Thesis Coordinator** who will file it as part of the departmental records. The Project Title/Outline will be posted on the Physics Department's website.

3. MID-SEMESTER PROGRESS:

Close to Mid-Semester (typically before Fall or Spring Break), all Senior Thesis students must arrange to meet with their Research Advisor to discuss their progress in the project. The Advisor may request a written progress report and/or a meeting with the other Committee Members.

4. END OF SEMESTER REPORTS:

At the end of the semester, all Physics 489W students must complete a brief Progress Report and submit it to their Research Advisor before a grade can be recorded for the 1 credit hour course. Students in Physics 490W and Physics 499W will complete and submit their written Senior Thesis as explained in Sections 5 and 6 below.

5. SENIOR THESIS PRESENTATION DAY:

Senior Thesis Presentation Day not only depicts the event in which all Physics 490W and 499W students give their Oral Presentation but also the deadline for having their Senior Thesis completed and examined by their Thesis Committee. It is also the deadline for which Physics 489W students must have completed and submitted to their Research Advisor a Progress Report of the work they completed during their first Senior Thesis semester. Presentation Day is normally scheduled on the last Tuesday of classes as part of the Physics Department Colloquium Series. The date is included in the Colloquium Schedule on the Physics Website. The date may vary or be split depending on the number of Senior Thesis Oral Presentations.

Oral Presentation:

The talks are typically 15 minutes long, including 3 minutes for questions. The student must prepare a draft of the oral presentation and meet with their Research Advisor to go over the content, organization, and slides for the talk at least 2 weekdays before the presentation. The presentation is expected to be a concise and well-organized PowerPoint presentation. Diagrams, figures, and text must be large enough to be readable by the audience on the overhead projection screen in the scheduled room. Axis labels on figures must be clearly legible. At least one practice talk should be given with the advisor prior to Presentation Day.

6. WRITING THE SENIOR THESIS:

Sufficient time needs to be allocated to the writing of a quality Senior Thesis and to have it submitted for review and examination. After completing the research portion of their project, the student should allow two weeks to compile the data, figures and tables and to write the document. **Seven days before the Senior Thesis Presentation Day** a complete written draft of the thesis is due to the advisor. The advisor must critique both the writing and the science in the thesis, and return the draft to the student within 2 days for possible corrections. The student incorporates changes requested by the advisor and gives the written thesis to the Thesis Committee members 3 days before Presentation Day.

Senior Thesis Committee members will give comments on the written draft to the student immediately after the oral presentation on Senior Thesis Presentation Day. The student must revise the draft and submit a copy of the final thesis to all members of the committee 3 days prior to Commencement Day for the particular semester, independent of whether or not they are graduating. When the Committee is satisfied

they will sign the Signature Page of the written thesis. The completed final Senior Thesis will be submitted to the Thesis Advisor in BOTH hard copy and digital format. The digital format must be complete and include a copy or scan of the original Signature Page. **The department will bind the original signed Thesis for its records.** The digital format will be used by the department to produce bound copies for the student and Examination Committee. **Only after complete fulfillment of the Senior Thesis requirements will the Research Advisor submit a grade to the university. This must be done prior to Commencement Day if the student is graduating.**

Written Thesis:

The thesis is expected to be at least 20 pages long, double spaced (excluding title page, table of contents, abstract, references, etc.). It can be written using any word processing software, but templates are available for LaTeX and MS Word. The thesis must have an abstract, title page, table of contents, clearly delineated chapters, and references. The formatting must be consistent and “professional” throughout; the document must be free of grammatical errors or other typos. Figures must be of high quality and have appropriate figure captions. Pages must be numbered. Senior Thesis examples from previous semesters (one LaTeX and one MS Word) are available in the Department Office and Conference Room (OCNPS 306). It is expected that the original signed Thesis will be printed by the student on paper of higher quality than standard photocopy paper. For help see the Senior Thesis coordinator.

7. GRADES:

Course Grades:

Course grades will be assigned by the Research Advisor in consultation with the Thesis Committee using the following weights.

(i) Physics 489W (1 credit):

| | |
|-----------------------------------|-----|
| Research | 60% |
| Progress Report (end of semester) | 40% |

(ii) Physics 490W (2 credits) and Physics 499W (3 credits):

| | |
|-------------------|-----|
| Research | 50% |
| Written Thesis | 30% |
| Oral Presentation | 20% |

Evaluation of the Written Senior Thesis:

The written Senior Thesis will be evaluated according to the following criteria:

(i) Scientific Content (50%)

- a. The topic is introduced clearly, demonstrating an understanding of the relevance of the topic and motivation for the work.
- b. The project is presented accurately and thoroughly, including detailed discussion of the work actually done by the student.
- c. The results/ conclusions/ significance of the work are presented clearly.

- d. The abstract is appropriate and constitutes an accurate summary of the work.
- e. Relevant work by others is appropriately cited.
- (ii) Quality of the Writing (25%)
 - a. The writing is grammatically correct.
 - b. The thesis is well organized.
 - c. The sentence structure and vocabulary are appropriate for an undergraduate science major.
- (iii) Presentation and Formatting (25%)
 - a. Formatting is professional and consistent throughout the document.
 - b. References are formatted in a way consistent with a standard physics journal.
 - c. Figures and tables are presented clearly, with appropriate captions.

Evaluation of Oral Senior Thesis Presentation:

The oral presentation will be evaluated according to the following criteria:

- (i) Organization and clarity of the slides (25%)
 - a. Text, diagrams and figures are readable by an audience in OCNPS 0200
 - b. The talk is well organized.
 - c. The slides are not too cluttered but they do have meaningful content.
- (ii) Scientific content (25%)
 - a. The level of the talk is appropriate for the audience.
 - b. The main aspects of the science and the student's work are conveyed with appropriate depth.
- (iii) Language and delivery (25%)
 - a. The student uses appropriate language, not too informal, and without too many "uhms."
 - b. The student faces the audience, uses a pointer as necessary, and makes eye contact with the audience.
 - c. The student dresses appropriately.
- (iv) Questions and Answers (25%)
 - a. The student understands the questions and answers the ones that he/she should be able to answer.
 - b. The student answers appropriately when he/she does *not* know the answer.

8. FINALIZING SENIOR THESIS:

A Final Grade will not be assigned for Senior Thesis students until all course requirements have been met. For Physics 489W students this includes an end of semester **Physics 489W Progress Report** submitted to and approved by their Research Advisor. **A template is available of the Physics Department's website.** For Physics 490W and 499W students this includes completion of the **Oral Presentation and the written Senior Thesis** which has had all corrections completed and the Signature Page signed by the Thesis Committee.

The Research Advisor will submit the original version of the Senior Thesis with the **original Signature Page to the Senior Thesis Coordinator before the date of the University Commencement Ceremonies**. A digital copy must also be forward to the Senior Thesis Coordinator. Contact the Coordinator if help is needed printing the high quality original version. The paper copy is required as it contains original signatures and may contain color images. This copy will be bound and documented by the department. A complete electronic copy (pdf format) of the final document is also required for departmental records. Additional bound copies are often requested by the student for the Research Advisor, Committee, family, and personal use. The Coordinator can help arrange these copies. Once the Senior Thesis requirements are fulfilled the Research advisor will be informed and a grade can be submitted by the Research Advisor, in consultation with the committee members and according to the grading guidelines below.

9. REGISTERING FOR SENIOR THESIS

(i) PHYSICS 489W and 499W

Students can only register for Phys489W and Phys499W after they have received the correct CRN from the **Senior Thesis Coordinator**. This requires the student to have fulfilled the requirements of Section 1 above. The Senior Thesis Coordinator will then allocate the student's Research Advisor to that CRN. **A different CRN will be allocated for each student.**

(ii) PHYSICS 490W: (2 credit hours)

The course prerequisite for Physics 490W is a pass in Physics 489W. Registration for Physics 490W proceeds through the normal process with a new CRN under the name of the same Research Advisor. This CRN will be given to the student by the **Senior Thesis Coordinator** after requirements of **Section 7 Course Grades** have been completed. If a student's Physics 490W Research Advisor is different from Physics 489W, contact the Senior Thesis Coordinator. A student whose Physics 489W grade has not been recorded with the Registrar needs to contact their Research Advisor.

10. FORMS AND DOCUMENTS:

The following forms and documents are available for download from the Physics Department's Senior Thesis website, located at

<http://www.odu.edu/physics/academics/undergraduate/thesis>

- (i) Intent to Begin Senior Thesis: (Physics 489W and Physics 499W).
- (ii) Senior Thesis Project Selection/Approval Form. (Physics 489W and 499W).
- (iii) Senior Thesis Committee Members Form.
- (iv) Progress Report Templates: (WORD and LaTeX).
- (v) Senior Thesis Project Summary Form.
- (vi) Senior Thesis Template: WORD (for Physics 490W and Physics 499W).
- (vii) Senior Thesis Template: LaTeX (for Physics 490W and Physics 499W).
- (viii) Senior Thesis Signature Page: WORD and LaTeX. (For original written Thesis)

11. Funding for Senior Thesis Research

There is no prohibition on students being funded by sources external to the Department for the research performed as part of their Senior Thesis. Acceptable funding included but is not limited to an Honors College Research Grant. Departmental funds should **not** be used.

Policy on Undergraduate Selection to Sigma Pi

Revision Date: February 2, 2017

Status: Public

The criteria for nomination to Sigma Pi is:

- A minimum overall GPA of 3.00.
- A minimum GPA in physics of 3.00.
- At least 3 semesters of full-time college work completed (36 credit hours).
- At least two 400-level physics courses completed at ODU with a B or better.
- Ranking in upper one-third of the College of Sciences

Policy on Undergraduate Level Challenge Exams in the Physics Department

Revision Date: Unknown

A student at Old Dominion University may request to take a challenge exam to receive college credit based on prior knowledge. All challenge exam requests must be submitted to the *Office of Prior Learning Assessment*, which then forwards requests to the appropriate department for approval and administration. If the request is approved, the student will be required to pay tuition at a rate set by the University.

Permission to take a challenge exam in physics is not automatic and will be determined on a case-by-case basis by the CDA.

I) Normally, a challenge exam will only be allowed if:

- 1) The student has taken and passed a college level (not high school) course at another institution with a grade which would allow for transfer to ODU but which does not transfer for *extraordinary* reasons (for example: a foreign college for which equivalency has not been determined).
- 2) A student can demonstrate experience that is equivalent to having taken a college level physics class (for example, from the military or work experience in industry).

II) Challenge exams will not be given if a student has taken a course at another institution that does not transfer to ODU because the grade is not sufficiently high. Challenge exams will not be given if a student has taken and failed that course at ODU.

III) In cases where the student cannot demonstrate laboratory experience equivalent to that of the course being challenged, the student may be required to complete a lab portion of the course at ODU in addition to passing the written challenge exam before receiving credit.

Policy on Credit for the Advanced Placement Exam

Revision Date: February 2, 2017

Approved by: Stephen Buelmann and Charles Hyde

| | |
|-----------------------|---|
| Physics 1 | score 3 ==> PHYS 101N |
| Physics 2 | score 3 ==> PHYS 102N |
| Physics B | score 3 ==> PHYS 101N + PHYS 102N (this is a legacy, Physics B is no longer offered) |
| Physics 1 | score 4,5 ==> PHYS 111N |
| Physics 2 | score 4,5 ==> PHYS 112N |
| Physics B | score 4, 5 ==> PHYS 111N + 112N |
| Physics C (Mechanics) | score 3 ==> PHYS 111N (new addition) |
| Physics C (E&M) | score 3 ==> PHYS 112N (new addition) |
| Physics C (Mechanics) | score 4, 5 ==> PHYS 231N |
| Physics C (E&M) | score 4, 5 ==> PHYS 232N |

Revision Date: July 7, 2015

Approved by: CDA

Status: Public

The Physics Department will award AP credit as follows:

AP Physics 1 score of 4 or 5: ODU PHYS 111N, 4 credits

AP Physics 2 score of 4 or 5: ODU PHYS 112N, 4 credits

AP Physics C, Mechanics score of 4 or 5: ODU PHYS 231N, 4 credits

AP Physics C, Electricity and Magnetism score of 4 or 5: ODU PHYS 232N, 4 credits

Revision Date: December 10, 2010

Approved by: Physics Department Faculty

Status: Public

The Physics Department will award the following credit for AP Exams:

1. Physics B Exam Credit for Physics 111N-112N (8 credits) will be awarded for a score of 4 or 5.
2. Physics C Exam (Mechanics) Credit for Physics 231N (4 credits) will be awarded for a score of 4 or 5.
3. Physics C Exam (Electricity and Magnetism) Credit for Physics 232N (4 credits) will be awarded for a score of 4 or 5.

Guidelines on the CERTIFICATE OF CAREER EXPERIENCE: Physics

Revision Date:

As a part of the Career Advantage Program, and in an effort to encourage students to pursue professional experience opportunities while at Old Dominion University, the Career Management Center proposes the development of a Certificate of Professional Experience. The certificate is comprised of a five-credit professional experience core including Internship or Cooperative Education and courses offered by the Career Management Center, and career-focused courses already in each major curriculum, with a minimum of twelve credits required for the Certificate of Professional Experience. Advantages of the certificate include:

- a. An additional credential to make science technology graduates more marketable
- b. Documentation of cooperative education or internship
- c. A potential increase in cooperative education registration without increasing the total number of credits required for graduation or by providing a “value added” reason to register if the credit cannot be accommodated in the curriculum
- d. Participation in career exploration and job search techniques courses to further equip graduating seniors with career tools. Students would meet with the appropriate Career Management Center Liaison to outline the program of study specific to the major. Following completion of the coursework, the CMC Liaison would certify satisfaction of the requirements for the Certificate of Professional Experience. Students would be issued a Certificate along with a transcript notation. CERTIFICATE OF CAREER EXPERIENCE

Career Core Minimum: 2 credits

Choose two of the following: Minimum: 10 credits

UNIV 195: Workforce Readiness (1 credit) UNIV 200: Career Implementation (1 credit)

UNIV 400: Career Engagement (1 credit) UNIV/ SCI 495: The Intersection of Business and Science (1 credit) **Students may select either UNIV 200 or UNIV 400, but not both, because of similar course content.*

Major Curriculum Core

Choose one of the following:

PHYS 367: Cooperative Education (3 credits) PHYS 368: Internship (3 credits)

Take all of the following:

PHYS 413W: Methods of Experimental Physics (3 credits) PHYS 499W:

Senior Thesis (3 credits) PHYS 4xx: Any 400-level PHYS course (1-3 credits)

Certificate of Career Experience Total: 12-14 credit

POLICIES ON AWARDS AND SCHOLARSHIPS

Policy on Selecting Recipients for the Diederich Scholarship

Revision Date: January 21, 2020

The full name of the scholarship is: “The Brian Donald Diederich and Flavia Alexandra Osorhean Scholarship Endowment for the Doctoral Research in Nuclear Physics”

A committee consisting of three members (one from Nuclear Theory, one from Nuclear Experiment, and one from a different research area in the department) will evaluate nominations for the award. The committee is to be nominated by the Chair. The nomination package for the candidate will simply consist of a letter of support from a faculty member. The award is nominally for graduate students in the area of Nuclear Physics (both theory and experiment). However, deserving graduate students from areas other than Nuclear Physics will also be considered.

Criteria as set forth by terms of the scholarship:

- First priority is to provide an additional award to an incoming experimental or theoretical nuclear physics Ph.D. student.
- Second priority is to provide an additional award to an existing experimental or theoretical nuclear physics Ph.D. student
- Third priority is to provide an additional award to an incoming or existing Ph.D. student in another field within the Department of Physics.
- The scholarship may be split between two students.
- The scholarship is renewable, although preference is to use the scholarship to recruit a new student as listed above.

WE NEED TO ADD ALL OTHER SCHOLARSHIPS HERE!

Policy on Selecting Recipients for the Dominion Scholarship

Revision Date: January 21, 2020

Selection of graduate students to receive the annual Dominion Scholarship will be made by the Department Chair, in consultation with the GPD.

GENERAL POLICIES AND GUIDELINES

Policy on Travel Reimbursement for Colloquium Speakers/Visitors

Revision Date: January 31, 2017

Colloquium speaker travel will be paid through the department's discretionary account, so we must ensure compliance with ODURF's travel policy and reimbursement procedures. The following expenses will be covered by the department:

Transportation Expenses

Commercial Transportation. Commercial travel should be procured at the lowest coach or tourist class services available that meet the specific needs of the traveler. First or business class rail or air service is not an allowable cost.

Automobile Expense. Visitors will be reimbursed for actual miles traveled in his/her personal vehicle, provided that the actual cost does not exceed the lowest tourist or coach commercial airfare.

Tolls, Parking and Taxi Expenses. Visitors will be reimbursed for tolls, airport parking or taxi expenses to/from the airport.

Lodging

The department will pay for one to two nights lodging at the SpringHill Suites located on Hampton Boulevard across from the University. To preclude the visitor from additional out of pocket expenses, hotel reservations can be made by the Physics Department staff who can pay for the room with an ODURF credit card. Any charges for hotel incidentals will be the responsibility of the visitor.

Meals

The host will ensure meals are provided while the visitor is at ODU. The traveler will be reimbursed for meals during his/her travel.

Travel Reimbursement

The Speaker's host is responsible for ensuring the visitor is provided the ODURF travel reimbursement form and informed of the submission process. Travel reimbursement forms should be submitted within ten days of completion of travel.

To be reimbursed for the above expenses, itemized receipts are required for every expense and must be submitted with the travel reimbursement form. Receipts must show that the expense has been paid in full. Visitors will need to keep boarding passes and an itemized airfare receipt. If the visitor drives, he/she must provide a google map of their driving route, which shows the miles they travelled. Visitors will also need a receipt for any meals, tolls, parking and taxi expenses.

If a visitor requests or requires other arrangements, discuss the situation with the Chair and get prior approval for additional expenses.

Policy for Listing Conference Presentations in Digital Measures (a.k.a. the Faculty Activity System or “FAS”)

Revision Date: March 7, 2011

Note: This policy covers only one aspect of the FAS system. FAS guidance needs to be expanded.

The list below provides guidance on how to enter various papers and presentations into Digital Measures:

1. Conference presentations of all sorts (contributed oral, invited oral and poster) go under "Presentations." There is a place there to indicate contributed or invited.
2. Colloquia and seminars also go under "Presentations."
3. There is no separate indication of who actually *gave* a contributed oral or poster presentation.
4. If a presentation of any sort for which a proceeding that is substantially different than the abstract is published, the faculty member may choose to list the proceeding in the "Published Works" section in addition to the presentation in the "Presentations" section.
5. There is no differentiation between poster and contributed oral presentation.

APPENDIX: OUTDATED POLICIES

Policy for Creating Course Numbers for AP Credit

Revision Date: October 12, 2006

Students who take the AP exam in physics can earn credit for the lecture portion of our introductory courses, but not the lab portion. In order to receive equivalency for Physics 111, 112, 231, or NSCP2REQ, students must also complete our 1 credit lab course (Physics 113 or 114).

In order to streamline the awarding of credit and for easy implementation of the new degree audit software, it would be of great benefit to have a course number associated with the lecture portion of the classes. This course would never run and students would not be allowed to sign up for it. The description would not explicitly refer to the “lecture-portion.” This is particularly important because if a lecture only portion of our introductory courses was available, certain departments might opt to skip the lab.

Four new “courses” will be listed. The course description will read something like this:

Physics 151-152 (6 credits): Students who receive a 3, 4, or 5 on the AP Physics B exam administered by ETS will be awarded 3 credits for Physics 151 and 3 credits for Physics 152.

Physics 251: Students who receive a 4 or 5 on the AP exam Physics C exam (Mechanics) administered by ETS will be awarded 3 credits for Physics 251.

Physics 252: Students who receive a 4 or 5 on the AP exam Physics C exam (Electricity and Magnetism) administered by ETS will be awarded 3 credits for Physics 252.

(Actual course numbers and descriptions to be determined in consultation with Judy Bowman).

Then, equivalency credit can be given as follows:

$151+113 = 111$ $152+114 = 112$ $251+113 = 231$ $252+114 = \text{NSCP2REQ}$

In addition, any one of the “courses” (152, 152, 251, or 252) = NSCP3REQ

Note that credit for Physics 232 will not be awarded because the Physics C AP Exam (EM) does not cover optics.

Nominal Schedule of Graduate Elective Courses

Revision Dates: December 2016; 2015

Approved by: Physics Department Faculty

In order to provide graduate students with a full range of courses needed for a modern graduate education, the Department will attempt to offer elective courses based on the following schedule:

YEAR 1

Fall Semester:

- PHYS 842 Advanced QM
- PHYS 754/854 Accelerator Physics

Spring Semester:

- PHYS 7xx/8xx Atomic/Molecular Physics *)
- PHYS 871 Quantum Field Theory
- PHYS 859 Classical Mechanics and Electromagnetism in Accelerator Physics

YEAR 2

Fall Semester:

- PHYS 722/822 Nuclear and Particle Physics I
- PHYS 857 Plasma Physics

Spring Semester:

- PHYS 7xy/8xy Condensed Matter **)
- PHYS 723/823 Nuclear and Particle Physics II

*) This would be a NEW COURSE created by combining the existing PHYS827 (Atomic Physics) and PHYS853 (Atomic and Molecular Physics). Because of the name being the same, we could simply name it PHYS853, but it probably would need to be a bit more on an introductory level. We may need to have a small committee of our AMO colleagues to define this course in detail.

***) This would be a NEW COURSE created by combining the existing PHYS724/824 (Solid State I) and PHYS 760/860 (Low Temperature). We may need a new number for it (or keep 724/824 but change the name and description). It would discuss all aspects of condensed matter, including solids and liquids, ordinary/semi/super-conductors, BE condensates, superfluidity,