# Doctor of Philosophy Program Overview

1. **Registration/Leaves of absence/Transfer credit**

2. **The Classroom Stage**

3. **The Research Stage**
   3.1 Doctoral Research Advisors
   3.2 Research Meetings and Feedback
   3.3 Research Submissions

4. **The Program Milestones**
   4.1 Milestone 1—Grade-Point Average
   4.2 Milestone 2—Conference Presentation
   4.3 Milestone 3—Journal Article
   4.4 Milestone 4—Final Examination
   4.5 A Note on Time to Completion
   4.6 A Note on Academic Integrity

5. **Graduation Clearance**

6. **Commencement**

7. **Administration**

Appendix: Approved Refereed Professional Journals for Ph.D. Student Publication
Doctor of Philosophy Program Overview

The online and off-campus Doctor of Philosophy (Ph.D.) programs consist of a minimum of 54 credit hours divided into 2 stages. The first stage comprises a classroom experience of 8 graduate-level, 3-credit-hour courses culminating in the student’s acceptance into an appropriate engineering professional conference. The second stage comprises an independent research effort of at least 30 semester hours of dissertation research culminating in the dissertation defense. The original dissertation is written in the field of systems engineering, which focuses on innovation in the theories that govern the structure, operation, and management of technical and scientific organizations.

The program’s 4 milestone accomplishments must be completed by specific deadlines in keeping with the accelerated nature of the program. After completing the coursework with a minimum Grade-Point Average (GPA) of 3.4 (Milestone 1), and presenting at an engineering conference (Milestone 2), the student writes a journal article that must be accepted for publication in an approved journal (Milestone 3), after which the dissertation may be defended (Milestone 4).

The objectives of the doctor of philosophy program in systems engineering are to ensure that graduates:

- Demonstrate, orally and in writing, mastery of broad-based knowledge in systems engineering, and of a specific area of knowledge relevant to their own research interests, including theories and methodologies, along with mastery of a research methodology.
- Demonstrate mastery of the methods, tools, and ethics of conducting primary research, and mastery of discovering and effectively evaluating appropriate secondary research sources, to support an original idea of their own.
- Develop and present an original study to the scholarly community that is based on research in primary sources and makes a significant contribution to the field, and that demonstrates the ability to engage in a productive research career.

1. Registration

The student must maintain continuous enrollment throughout the SEAS Online and Off-Campus doctoral program. Semester enrollment information is distributed by the SEAS Online and Off-Campus Programs Office by email before the start of each semester, and registration is processed directly by the office on the date listed in that email, assuming that the students have honored their academic [3] SEAS Online and Off-Campus Programs Ph.D. Student Guidelines 10/11/18
and financial obligations to the university.

Registration holds are placed on student accounts with outstanding balances. Our office cannot process registration when there is a registration hold on the account. For this reason, students must make payment on time each semester. Late payment of tuition is possible grounds for removal from the doctoral cohort. Withdrawal and tuition refund policy can be found at [http://emse.offcampus.gwu.edu/about-us/policies-procedures/](http://emse.offcampus.gwu.edu/about-us/policies-procedures/).

*Leaves of absence*: Doctoral curricula are determined by the faculty, and course information is provided to students by email from the SEAS Online and Off-Campus Programs office before the start of each semester. Students are registered as members of a cohort. This means that all courses are taken in lock-step throughout the program. Leaves of absence are generally not permitted. A Ph.D. student who finds it necessary to interrupt active pursuit of the degree may petition the SEAS Online and Off-Campus Programs office for a leave of absence by emailing a full explanation and attaching a completed LOA form and any supporting documentation to cohort@gwu.edu. Petitions are usually answered within two work weeks. Leaves of absence may be granted for family emergency (up to 6 months), physical or mental health treatment (up to 6 months), or deployment to active military duty (up to one year).

*Transfer credit*: Transfer of credit is not permitted in doctoral programs.

2. **The Classroom Stage**

To complete the classroom stage Ph.D. students must satisfactorily complete the required curriculum of 24 credit hours, complete each course with a grade of *B-* or better, and achieve a minimum GPA of 3.4 (*Milestone 1*).

*Grading and Scholarship*: GW uses the following grading system for graduate students: *A, B, C, F*; other grades that may be assigned are *A-, B+, B-, C+, C-* Individual course grades are based on a standard curve relative to the class average.

Students who receive *I* grade below *B-* are barred from further enrollment in graduate courses and will not be readmitted as a degree candidate.

3. **The Research Stage**

Following successful completion of the classroom stage (*Milestone 1*), the student is admitted to candidacy for the Ph.D. and is enrolled in EMSE 8999 Dissertation Research to conduct the research to be developed into the program milestone accomplishments.

[4] SEAS Online and Off-Campus Programs Ph.D. Student Guidelines 10/11/18
Research stage requirements:

A. enroll in a minimum 30 credit hours of EMSE 8999
B. develop an abstract and/or paper to present before a professional conference
C. write an original research article and have it accepted for publication by an approved academic journal
D. write and defend a dissertation.

No fewer than 30 credit hours of EMSE 8999 will satisfy the requirements for the Ph.D. Students are registered for a minimum of 6 credit hours in each Fall and Spring semester and 3 credit hours in Summer. Extensions may be granted on a case by case basis depending on the candidate’s satisfactory progress toward the program milestones. During approved extension semesters, students are registered for 3 credit hours each summer and 6 credit hours each fall and spring semester at the tuition rate in effect at that time.

The average minimum amount of out-of-class or independent learning you should expect to perform each semester in the research course is greater than it is for a classroom course. Depending on the number of credit hours you are registered for, you can expect:

for 3-Credit-Hour EMSE 8999 (Summer and extension semesters):
Average Amount of Out-of-Class or Independent Learning Expected. For this 3-credit-hour, independent-study course, the student is expected to spend a minimum of 112.5 hours for the semester researching and producing the research milestone documents for the degree, and meeting with the research advisors for review of progress as needed.

for 6-Credit-Hour EMSE 8999 (Spring and Fall):
Average Amount of Out-of-Class or Independent Learning Expected. For this 6-credit-hour, independent-study course, the student is expected to spend a minimum of 225 hours for the semester researching and producing the research milestone documents for the degree, and meeting with the research advisors for review of progress as needed.

See GW’s credit hour policy at provost.gwu.edu/policies-forms and https://provost.gwu.edu/files/downloads/Resources/Assignment-of-Credit-Hours_Final_Oct-2016.pdf.

3.1 Doctoral Research Advisors

The program faculty assign doctoral research advisors to the Ph.D. candidates as they
enter the research phase. Candidates work with their assigned advisor team for the remainder of the program.

3.2 Research Meetings and Feedback

The advisors schedule monthly research meetings with the advisees, who are required to attend. Meetings are announced by email in advance. Candidates are responsible for submitting slides covering research progress to the advisors by the deadline provided in the meeting announcement. Slides must be submitted for all meetings, even if the student will be absent.

Advisor teams directly manage the research course EMSE 8999. Slide submission deadlines are set by the advisor team and communicated to the students by email.

Students receive written feedback from the advisors after each advising meeting, and a Semester Summary Report at the end of each semester. Progress is noted as:

- **Green** – Student is making sufficient progress toward milestone completion
- **Yellow** – Student is making some progress but is in danger of not meeting milestone timelines
- **Red** – Student is making insufficient progress, and should do significant revision/rewrite

If the advisors determine that the student makes insufficient progress (Red) in a semester, a NC (No Credit) grade is assigned for the course on the transcript and the candidate’s program and research toward the Ph.D. is terminated. A one-time courtesy option to convert in the current semester to a post-master’s professional degree (Engineer or Applied Scientist) is offered.

3.3 Research Submissions

All abstracts, conference papers, and journal articles must be forwarded to the research advisors for review and approval before they are submitted to a conference or journal. The SEAS Online and Off-Campus Programs office must be copied (at seasdoc@email.gwu.edu) on all submissions and on all other correspondence with conferences, journals, or related entities. All final advisor-approved papers must be sent to seasdoc@gwu.edu for academic integrity review prior to submission. See “4.6 A Note on Academic Integrity” below.

4. The Program Milestones

Ph.D. candidates (students in the research stage) who are registered for EMSE 8999

[6] SEAS Online and Off-Campus Programs Ph.D. Student Guidelines 10/11/18
complete Milestones 2, 3, and 4, described below.

4.1 Milestone 1—Grade-Point Average

Students must complete the required Ph.D. classroom courses with a final GPA of 3.4/4.0 or better. They can have no grades below B-.

4.2 Milestone 2—Conference Presentation

The candidate is expected to present results of the research, subject to the advisor’s approval, at an engineering professional conference, such as INCOSE’s. The approved presentation must be submitted to the conference within 3 months after completing Milestone 1, and the paper must be presented at the conference no later than (NLT) 9 months after completion of Milestone 1. Deadline dates are provided to each cohort. Credit must be given in the presentation to the fact that the material is abstracted, summarized, or developed from a dissertation submitted to the George Washington University in partial fulfillment of the requirements for the Ph.D.

4.3 Milestone 3—Journal Article

The candidate must submit an approved research article embodying the results of an extended original study to a SEAS Online and Off-Campus Program-approved, refereed scholarly journal (list at Appendix) NLT 30 months after the start of the Ph.D. program. Credit must be given in the publication to the fact that the material is abstracted, summarized, or developed from a dissertation submitted to the George Washington University in partial fulfillment of the requirements for the Ph.D., and the dissertation advisors must be listed as co-authors. Students who have not submitted a journal article within 30 months of the start of the program, or whose article is not accepted for publication within 48 months from the start of the program, are subject to removal from the program.

If revisions are requested from the publication, candidates must send back the revised article, approved by the advisors, within 30 days. Failure to do so results in an automatic red for the semester. Reviewer comments should be forwarded within 48 hours of receipt to the advisors and to the SEAS Online and Off-Campus Programs office at seasdoc@email.gwu.edu. Rejection of two journal articles may be cause for dismissal from the program. Before the candidate defends the dissertation, the article must be accepted for publication.

Within 90 days after submission to an approved journal, the candidate must submit a complete draft of the dissertation to the research advisors for review. Once the journal article is accepted for publication, the dissertation must be ready to defend within 30 days.
4.4 Milestone 4—Dissertation and Final Examination

Upon successful completion of all prior requirements, the candidate submits the final dissertation, approved by their advisors, to SEAS Online and Off-Campus Programs at seasdoc@email.gwu.edu. Below are guidelines and instructions for the dissertation defense (final examination).

- Refer to https://library.gwu.edu/seas for dissertation format guidelines.
- Once the advisor approves the final version of the dissertation, you forward it to seasdoc@gwu.edu requesting an Academic Integrity Review (AIR).
- Upon receiving your final dissertation from you, SEAS Online and Off-Campus Programs submits it for AIR. If it does not pass, we notify you asking that any problems be fixed.
- When the dissertation meets AIR requirements, the final examination is scheduled and details are announced by email. At that time, all graduation paperwork and committee information is provided.
- Membership on the committee of examiners is determined by the SEAS Online and Off-Campus Program.
- You can submit the dissertation to the committee members by email or in print, based on committee member preference. If hard copies of the dissertation are requested, they should be printed double-sided.
- When the final examination committee is convinced of the quality and originality of the candidate’s contribution to knowledge as well as his or her mastery of the scholarship and research techniques in the field, the committee recommends the candidate for the degree of Doctor of Philosophy.
- Dissertation submission and graduation deadlines (no later than the dates shown) for the final paper to be ready for defense, after AIR approval, are:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Completion Deadline*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring</td>
<td>March 15</td>
</tr>
<tr>
<td>Summer</td>
<td>August 1</td>
</tr>
<tr>
<td>Fall</td>
<td>December 1</td>
</tr>
</tbody>
</table>

*Deadline to have the final paper ready for defense, including academic integrity review, in order to defend/graduate in the semester listed.

4.5 A Note on Time to Completion

The SEAS Online and Off-Campus Programs Doctor of Philosophy degree program is designed for the student to complete all milestones in under 4 years.
4.6 A Note on Academic Integrity

All student papers (conference papers, journal articles, dissertations and praxes) must pass AIR before being submitted outside the university. It is the responsibility of the student to submit these items to the SEAS Online and Off-Campus Programs Office at seasdoc@gwu.edu for AIR before submitting them to a conference or journal. Papers should be approved by the advisors before the student submits them to SEAS Online and Off-Campus Programs for AIR. Once the advisors approve the final version of a paper, the item should be forwarded to seasdoc@gwu.edu with a request for AIR evaluation. An email confirmation is sent once the item has passed and is approved for submission.

All papers are expected to use proper citation and pass the AIR without issue. If a paper fails the AIR, the SEAS Online and Off-Campus Programs Office provides a courtesy report to the student so that appropriate updates can be made. Submissions with academic integrity concerns that do not pass the review on the 3rd attempt may be forwarded to the GW Academic Integrity Council for additional evaluation. The GW Code of Academic Integrity may be viewed at http://www.gwu.edu/~ntegrity/.

In researching the dissertation, and in any published and public results, the candidate must follow GW policies on research conduct and the use of copyrighted material. See http://my.gwu.edu/files/policies/ResearchMisconductPolicy.pdf and http://library.gwu.edu/etd/copyright.

5. Graduation Clearance

After a successful dissertation defense the SEAS Online and Off-Campus Programs Office assembles all necessary documentation for graduation clearance.

Degrees are conferred in January, May, and August. To be recommended by the faculty for graduation, a student must have met the admission requirements of the school in which registered; completed satisfactorily the scholarship, curriculum, and other requirements for the degree; filed an application for graduation by the date requested by SEAS Online and Off-Campus Programs; and be free from all indebtedness to the university. Enrollment is required in the semester at the close of which the degree is to be conferred, and all degree requirements must be completed by the last day of final examinations for that semester.

Diplomas are mailed 12-14 weeks following the date of degree conferral, barring
unforeseen circumstances. Diplomas are mailed to the Diploma Address in the record. The candidate is responsible to enter this address in the GWeb information system and make any updates. See the following link for graduation application instructions: https://registrar.gwu.edu/online-graduation-application-instructions. The Diploma Address must be entered before the application for graduation is submitted.

If you do not receive the diploma by 12-14 weeks after your graduation date, check the online transcript to see if the degree was conferred. If it was conferred, the missing diploma must be reported to the Registrar’s Graduation Services Office within 6 months. After that time a fee is charged for a replacement diploma. Also check to see if there are any financial holds on the account. A diploma is only sent if the balance owed is less than $500. If the degree was not conferred, check with the SEAS Online and Off-Campus Programs Office.

6. Commencement

Participation in the annual Commencement ceremonies in May is open to students who have applied to graduate in the current spring semester or who graduated the preceding fall or summer semester.

Doctoral candidates who have not successfully defended their dissertations and completed their ETD Approval form by 1 April may not participate in either the May University Commencement or the SEAS graduation ceremony.

Students who apply to graduate after the published deadlines are not guaranteed Commencement materials and may not be listed in the Commencement program. Find more information about University Commencement at https://commencement.gwu.edu/.

7. Administration

The SEAS Online and Off-Campus Programs staff is responsible for monitoring and tracking student progress. For this reason, all communication related to the online and off-campus Ph.D. programs must involve the SEAS Online and Off-Campus Programs (seasdoc@gwu.edu). Relevant communications are comprised of advisor/student interaction, journal and conference submissions, journal reviews and comments on your article, research inquiries, and all other program-related information. Additionally, students are expected to keep the SEAS Online and Off-Campus programs Office informed of their current contact information, such as email address, home address, and telephone numbers, including cell phone number.

Find the university policies and regulations in the George Washington University Bulletin at http://www.gwu.edu/~bulletin/.

The University reserves the right to change courses, programs, fees, and the academic calendar, or to make other changes deemed necessary or desirable, giving advance notice of change when possible.
Approved Refereed Professional Journals for Ph.D. Student Publication

Listed below are the journals in which Ph.D. candidates in systems engineering may seek publication. Journal titles are followed by the name of the publisher (in parentheses), and then by the journal’s impact factor. The list was developed and is reviewed regularly by the SEAS Online and Off-Campus Programs faculty, and your research must be appropriate for publication in one of these journals. Submission to a journal not on this list is prohibited.

- ACM Transactions on Information Systems (Association for Computing Machinery) - 0.977
- ACM Transactions on Intelligent Systems and Technology - 2.414
- ACM Transactions on Modeling and Computer Simulation - 0.356
- ACM Transactions on Privacy and Security (was ACM Transactions on Info & System Security) - 0.759
- ASCE Journal of Management in Engineering (American Society of Civil Engineers) - 1.840
- ASME Engineering Management Journal (Taylor & Francis) - 0.456
- Business & Information Systems Engineering (Springer) - 2.059
- Computers and Operations Research (Elsevier) - 1.988
- Computers & Security (Elsevier) - 1.640
- Decision Analysis (Inst for Optns Resch & the Mgt Sciences) - 1.132
- Disaster Prevention and Management (Emerald Group) - 0.907
- Disasters (Wiley) - 1.08
- European Journal of Operational Research (Elsevier) - 2.679
- Expert Systems with Applications (Elsevier) - 2.981
- Formal Methods in System Design (Springer) - 1.132
- IEEE Engineering Management Review Journal (Institute of Electrical and Electronics Engineers) - 3.88
- IEEE Security & Privacy - 0.902
- IEEE Systems Journal - 2.114
- IEEE Transactions on Engineering Management - 1.454
- IEEE Transactions on Systems, Man, and Cybernetics: Systems - 1.598
- IIE Transactions on Healthcare Systems Engineering - 1.451
- Information and Software Technology (Elsevier) - 1.569
- Information Systems Journal (Wiley) - 2.522
- Information Systems Research (Inst for Optns Resch & the Mgt Sciences) - 3.047
- International Journal of Logistics Management (Emerald Group) - 0.917
- International Journal of Logistics Research and Applications (Taylor & Francis) - 0.933
- International Journal of Project Management (Elsevier) - 2.865
- Journal of Engineering and Technology Management (Elsevier) - 1.474
- Journal of Engineering Design (Taylor & Francis) - 1.946
- Journal of Enterprise Transformation (Taylor & Francis)
- Journal of Knowledge Management (Emerald) - 1.689
- Journal of Risk and Uncertainty (Springer) - 1.426
- Journal of Systems and Software (Elsevier) - 1.4
- Journal of Technology Transfer (Springer) - 2.213
- Journal of the Operational Research Society (Springer) - 1.225
- Knowledge Management Research and Practice (Springer) - 1.01
- Military Operations Research (Military Operations Research Society) - 0.312
- MIS Quarterly (Mgt Info Syst Resch Ctr, Carlson Sch of Mgt, Univ of Minnesota) - 5.364
- Quality and Reliability Engineering International Journal (Wiley) - 1.457
- Project Management Journal (PMI) - 1.765
- Reliability Engineering & System Safety (Elsevier) - 2.498
- Requirements Engineering (Springer) - 1.105
- Risk Analysis (Wiley) - 2.225
- Risk Management Journal (Springer) - 0.458
- SIAM Journal on Applied Mathematics (Society for Industrial & Applied Math) - 1.510
- Software and Systems Modeling (Springer) - 0.990
- Strategic Management Journal (Wiley) - 3.300
- Systems Engineering (Wiley) - 0.956

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