

**SYSTEMS SCIENCE PH.D. PROGRAM**

Supplemental Rules

Note: These rules supplement the PSU Bulletin.  
You may obtain a copy of the SySc portion of the bulletin at  
<http://www.sysc.pdx.edu>

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## I. SUPPLEMENTAL ADMISSIONS AND ADVISING RULES

1. Admissions Criteria. Systems Science students are expected to attain proficiency in the quantitative research methods used in their respective fields. The program admits the most qualified students, based on GRE/GMAT scores, undergraduate GPA, graduate GPA, statement by the applicant, letters of recommendation, etc.

The following guideline floor criteria are in effect:

Undergrad GPA: 3.0 (This is a very important criterion.)

Graduate GPA: 3.25

GRE/GMAT: A combined GRE score of 1100 (both verbal and quantitative, OR both verbal and analytical) or GMAT score of 550.

Note: some departments admit students only for the fall term. Prospective applicants can obtain the graduate application forms from: <http://www.gsr.pdx.edu/gs/forms/gradapp.pdf>.

### Admissions Procedure

For Departmental Option students, the admissions procedure is as follows. Applications received by the Systems Science office which indicate the choice of the Departmental option will be forwarded (when the application is complete) to the appropriate department for review.

Departments will, after reviewing these files, make recommendations for action to the Systems Science Admissions Committee. Note: Some departments admit students only for the fall term. Prospective applicants can obtain the graduate application forms from:

<http://www.gsr.pdx.edu/gs/forms/gradapp.pdf>

A decision by a participating department/school to deny admission to an applicant is final. A recommendation to admit is reviewed by the four member Systems Science Admissions Committee. If the Committee disagrees with this recommendation, it will discuss the matter with the department/school. After such discussion, if the Committee votes 3 to 1 against admission, the department/school recommendation is overruled. If the Committee is split 2 to 2, the Systems Science Director will make the final decision.

For Core Option applicants, the Systems Science core faculty will make admission recommendations to the Systems Science Admissions Committee, which will follow procedures as described above.

The Systems Science Admissions Committee consists of four members, each serving a minimum two-year term (for continuity). The membership is: one core faculty member and one faculty member from each of the three participating schools. A core faculty member is a faculty member with 0.5 FTE or more in Systems Science. The Dean of each participating school will be asked to appoint the school's faculty representative on the Systems Science Admissions Committee. The Committee will review applicant files once each quarter to determine admissions for the next quarter. The Director will vote in the event of a tie of the committee.

2. Advising. At the time the decision to admit is made, the Director assigns the student one or more advisors who will assist the student in planning a program of study and research. Normally, for Core Option students, a core faculty member is assigned to the student. For Departmental Option students, a faculty member from the department is chosen as their primary advisor. In addition, a Systems Science advisor is assigned. These advisors are responsible for assisting the student in his/her program up to the point that the Comprehensive Examination Committee (CEC) is appointed. (At that time, the Chair of the CEC becomes the student's advisor, and serves in that capacity until the student's dissertation committee and proposal have been approved. The Chair of the Dissertation Committee then takes over as the student's advisor.)

At least once per year, each student's file is reviewed by his/her advisor(s) to insure that program requirements are being met. If the student appears to be having difficulty or to lack essential background skills, the advisor(s) may recommend remedial coursework.

**Core Option:** 12 additional hours of Systems Science courses and 44 additional hours in approved areas.

Decisions to transfer credits for Core Option students are made by the Program Director upon recommendation of the student's advisor(s); decisions for Departmental Option students are made by the department/school. There is no specific time limitation on when courses were taken; however, the student is expected to be familiar with, and may be examined on, material being given in current courses equivalent to those included in the Comprehensive Examination Proposal.

## II. SUPPLEMENTAL ENROLLMENT RULES

1. Continuous Enrollment. Students are expected to enroll each term after they are admitted until all requirements for the degree are completed. If a student is unable to do so, approval for a leave of absence must be obtained by writing the Program Director and stating the number of terms of expected absence and the reasons for the leave. Students are normally dropped from the Systems Science active list after one year of absence unless an official leave of absence has been approved. University admission is cancelled after an absence of two years.

In any term in which the student uses University facilities, services, or staff, the student must enroll for an appropriate number of credit hours (normally, at least 3).

2. Residency Requirement. General University requirements dictate that at some time during the doctoral program, the student must have been in residence (i.e., taking at least nine hours) for three consecutive terms. This requirement can be fulfilled by thesis credits (SYSC 603) while the student is advanced to candidacy.

3. Time Limitations. As the backgrounds and programs of students vary widely, so does the time required to complete Ph.D. requirements and graduate from the Program. A student with an appropriate undergraduate background, with no prior graduate work and enrolled full time as a student, might expect to graduate in approximately four to five years. This includes about two and a half to three and a half years of coursework; a term to a year or more to complete the language exam (if required by the student's department), Comprehensive Exams, and the thesis proposal; and, after the proposal is accepted and the student is advanced to Candidacy, a year or more for research and completing the dissertation.

The Comprehensive Examinations must be taken no later than five (5) years after admission to the Systems Science Program. (See paragraph III. 3. Transfer Credit regarding requirements about courses submitted in Comprehensive Examination Proposal.) The student may petition the Systems Science Faculty through the Systems Science Director for a maximum of one-year extension of this requirement. If the examinations are not taken by the stipulated time the student will be permanently dropped from the Program.

The student is expected to prepare a dissertation research proposal, submit it for acceptance by a proposed Dissertation Committee, and be advanced to Candidacy within one year of passing the Comprehensive Examinations. A student may petition the Systems Science Faculty through the Systems Science Director for an extension, but the maximum period allowed is two years from passing the Comprehensive Examinations. If the student is not advanced to Candidacy by the end of the one year limit (or, up to two years, if a petition is approved by the Systems Science Faculty), the student will be permanently dropped from the Program.

Students must complete the dissertation within five years of the date of advancement to candidacy. Should a student require longer than five years to complete the dissertation, and if an extension is granted by the Vice Provost for Graduate Studies and Research, Systems Science requires that a regular, or a special, Comprehensive Examination must be taken.

4. Grade Requirements. A student with regular admission status into any of the Systems Science graduate programs must maintain a cumulative GPA of 3.25 or better for all graduate courses taken at PSU. The first GPA calculation is made after 12 credit hours are taken. A student whose grades fall below this level will be placed on academic probation the term following the term in which the unacceptable GPA was earned. (This is probation in the Program, not University probation.) Regular students who fall below a 3.25 GPA have one term to raise their GPA to 3.25 or above. If this is not accomplished, the student will be dropped from the program. Additional GPA requirements are found in the comprehensive exam section.

A student with conditional admission status must maintain a GPA of 3.25 or better for the first 12 hours of program-related graduate courses taken. If the student's GPA falls below 3.25, the student will be dropped from the Program (with no extra probationary period allowed).

### III. SUPPLEMENTAL COMPREHENSIVE EXAMINATIONS RULES

1. Nature & Frequency of Exam. Comprehensives are written and oral examinations covering the subject matter in the student's graduate coursework, and are taken after this coursework is completed. The Comprehensive Examinations are normally given twice a year, in the Fall and Spring terms.

The written portion of the Comprehensive Examination consists normally (see details below) of a total of 4 four-hour exams. The written exams are followed a week later by an oral (two-hour) exam. For Departmental Option students, one written exam will be in Systems Science and will be given by a SySc core faculty member and the other three in the appropriate (or supporting) discipline(s). The student must achieve a 3.25 GPA for the courses comprising the comprehensive exam on Systems Science.

Comprehensive exams are taken in four areas, one of which is Systems Science. A four-hour exam is given in each of the four areas. Each area is supported with a minimum of 16 credit hours. No more than 16 credit hours of by-arrangement courses (503, 505, 507, 509, 605, 607, 609) can be used as part of the 64 credit hours. A maximum of 8 credit hours of 503 can be used toward the 16 credit hours of by-arrangement courses. No by-arrangement courses can be used in support of the Systems Science exam area. A reading list for the by-arrangement courses must be included in the comprehensive exam proposal. By-arrangement courses numbered 501, 504, 601, and 604 cannot be used towards the 64 credit hours.

With the consent of the examiner, a student may provide and use a non-proctored computer for a written comprehensive exam. The Systems Science Program will provide/proctor/secure/administer a computer only for students who have a medical need for one. Students may petition for such support with documentation of this medical need. All computer use must be stipulated in the approved Comprehensive Exam Proposal. Printer support will be provided at the end of each exam period for approved users.

2. The Comprehensive Examination Proposal. The student must prepare a statement showing that he/she has satisfied all Ph.D. course requirements (including, if applicable, foreign language competence). (The Comprehensive Exam Proposal thus serves the same purpose as the GO12 form for Master's programs.) The statement must describe the area within which the student intends to function professionally after completing the program, and, within this context, also define four (or more) topic areas over which the student will be examined. This information will enable the Comprehensive Examination Committee to assess the appropriateness of the student's coursework as preparation for intended future work and, more immediately, for the dissertation research. (Sample proposals are available from the SySc office.) Exam subjects for Departmental Option students may be specified by the participating departments.

The student proposes (with the assistance of his/her advisors) four or more faculty members to serve as the Comprehensive Examination Committee. For Departmental Option students, the department/schools may specify the examiners if they wish. At least one examiner must be a SySc core faculty member. The student and the individual examiners agree upon proposed examination descriptions. Examiners may solicit questions from other faculty members, who would then grade those questions. These additional faculty should also be identified in the proposal.

At least three months prior to the date of the examination, the potential examiners meet as a group (with the student's advisor(s), if not among this group) to review the overall definition of the proposed examination and to assess the appropriateness of the proposed examination topics as preparation for the student's proposed research area.

The overall examination definition (subject areas and examiners) is subject to approval by the Program Director. Departmental Option students also need department/school approval on their Proposals. The Committee for each student is subsequently appointed by the Program Director. The Chair of the Comprehensive Examination Committee then becomes the student's principal advisor and serves in this capacity until the Dissertation Committee is appointed.

3. Grading. Each exam is graded by the examiner(s) as either Pass (P), Fail (F), or Marginal (M). The Comprehensive Examination Chair is responsible for collecting the results of the written examinations from each Committee member. The following is the procedure to be followed for integrating the grades of the written exams, when the usual practice of four 4-hour exams is followed.

<u>Grades received</u>	<u>Outcome</u>
A. all P or one M	student takes Oral exam
B. two M or one F	student must retake written exams not passed, and then take oral exam
C. worse than above	student must retake all written exams, and then take oral exam

If retaking of written exams is required, they must be retaken within a year during one of the normally scheduled comprehensive exam periods. Under no circumstances can written exams be taken more than twice. [If B or C above pertains on the second taking of the written exams, the student is automatically dropped from the program.]

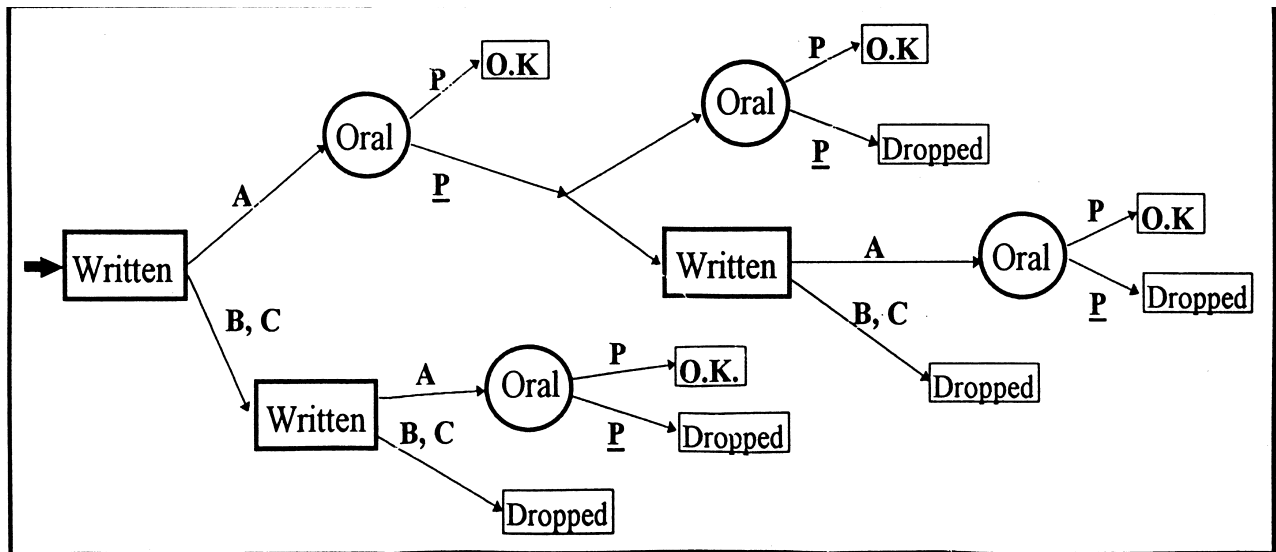
The Committee Chair will be responsible for notifying a student of the results of the examination and the next steps the student must take. The student will not have access to the completed written exams and is not permitted to discuss the results of the written exams prior to the oral examination.

Following the completion of the oral examination, each Committee member is called upon to render a judgment, based on *all* information available to him/her, of the student's indicated ability, preparation, and promise for pursuing doctoral-level research and professional work. The assessment will be made using a number from 1 to 5, using the scale indicated below, via secret ballot. The scores will be totaled and averaged. To pass, the student must have a score larger than or equal to 3.8.

- 5 exceptional student
- 4 satisfies our norm of a solid Ph.D. caliber graduate student
- 3 in some ways satisfied the above mentioned norm, but only at the low end of the spectrum (call this “marginal”)
- 2 is too weak to be classified as marginal, but stronger than for the next category
- 1 in the committee’s opinion, the student has no business in this program

Announcement of the pass or fail for each student comes from the Chairman of the student's CEC, who will also notify the Director of the results, and place a memo concerning the results in the student's file.

Written and oral comprehensive examinations are required in appropriate areas to demonstrate the breadth and depth of the student’s academic competence and expertise in research techniques pertinent to his/her intended dissertation area. Written exams cover four distinct areas, each including a minimum of 16 course credit hours.



#### IV. SUPPLEMENTAL ADVANCEMENT TO CANDIDACY RULES

1. To be advanced to candidacy, students must complete a total of 72 credits (8 credits in addition to the 64 credits taken for comprehensive exams), hold a dissertation proposal meeting, and have a committee approved dissertation proposal.
2. Dissertation Proposal. The major program-related objective of the student following the Comprehensive Examinations is to submit an acceptable dissertation. The process leading to this objective includes definition of a research topic, identification of appropriate faculty to serve as the Dissertation Committee, preparation and presentation of an acceptable research proposal (which leads to advancement to Candidacy), carrying out the research, writing the dissertation, and successfully presenting and defending the dissertation at an oral examination.

The Chair of the student's Comprehensive Examination Committee (CEC) assists the student during the process leading to advancement to Candidacy and to the appointment of a Dissertation Committee for the student. The student decides on an appropriate dissertation topic, and develops it sufficiently by discussion with prospective members of the Dissertation Committee (including the representative of the Office of the Vice Provost for Graduate Studies). When the student is forming his/her dissertation committee, a GO-16 form needs to be completed (by the Systems Science staff) and submitted to Graduate Studies, to officially appoint the dissertation committee. This form requires the following information: 1) dissertation topic; 2) will human subjects be used, yes or no (if yes, a draft of the human subjects application must also be submitted to Graduate Studies); 3) names of the four regular committee members; and 4) two suggested names for the graduate studies representative, in priority order.

When the student is ready, the CEC Chair convenes a meeting of the prospective committee members to pass on the Proposal. (In many cases, the CEC Chair becomes the Dissertation Committee Chair. Alternatively, the student may begin working intensively with another faculty member who will become the Dissertation Committee Chair, but this role does not become official until the Graduate Office approves the constitution of the Dissertation Committee.) Each Committee member will be given a copy of the proposal (at the student's expense) at least ten days prior to the meeting. At this meeting, the student makes a formal presentation and answers questions from the Committee regarding the proposed research. It is possible that the student will be required to make changes in the proposal, per recommendations by the (prospective) Committee members.

The student must convince prospective committee members that the proposed research problem is appropriate for a Ph.D. in Systems Science and meets University requirements. Students should obtain a copy of the Office of Graduate Studies' requirements for a dissertation (available from the Graduate Studies Office). The proposal is expected to include the following:

- 1) Background and general status of knowledge in the problem area.
- 2) Theoretical and empirical framework within which the proposed problem exists, beginning with a concise statement of the problem.

3) Significance of the proposed research and its likely contributions.

4) Research methodology to be used. If the research is empirical, this section should give evidence of careful planning of the research design.

When the prospective Committee members are satisfied that the student's proposal meets the above requirements and are willing to serve on the Committee, they sign the cover sheet of the proposal. Following this, the Chairman of the student's Comprehensive Examination Committee forwards a letter of Recommendation for Advancement to Candidacy and a copy of the cover page of the research proposal to the Vice Provost for Graduate Studies.

The letter of recommendation must be signed by the Comprehensive Examination Committee Chairman and the Director. The Vice Provost for Graduate Studies approves the dissertation problem, appoints the Dissertation Committee, and advances the student to Candidacy for the degree.

Students must be advanced to Candidacy within one year after passing their Comprehensive Exams, or within two years, if a petition for a time extension has been approved by the Systems Science Faculty. (See IV.3.)

3. Composition of the Dissertation Committee. The dissertation committee consists of four (or more) members recruited by the student plus a Graduate Studies representative. The principal dissertation advisor must be a regular, full-time faculty member at PSU. Of the remaining three (or more) members recruited by the student, at least two must be (or have been) on the PSU Faculty. At least one member must be a PSU faculty member who holds a regular or joint appointment in Systems Science. Each member of the committee must hold a doctorate and be a recognized researcher in a field appropriate to support the student's research.

The Committee is encouraged to use an "expert" in the student's research area as an external reviewer of the dissertation. If received, such expert opinion will be used by the Committee in its final judgment of the acceptability of the dissertation, but the reviewer does not have a vote at the final oral examination.

## V. SUPPLEMENTAL DISSERTATION RULES

1. Registration. Students must complete a minimum of 27 hours of SySc 603, Dissertation Research, after advancement to Candidacy. Enrollment in SySc 603 is not allowed until the student is advanced. Students will enroll in SySc 601 (non-dissertation) Research after passing the Comprehensive Examination while preparing the Dissertation Research Proposal. Up to nine 601 credits taken in the quarter in which the student is advanced to candidacy may be changed by the Director into 603 credits. It is the student's responsibility to schedule the dissertation proposal meeting early in the quarter, as follow-up meetings may be needed before the proposal is approved. It also is the student's responsibility to schedule the follow-up meetings in a timely fashion during the quarter.

The maximum number of 603 hours for which a student may register in one quarter is 12.

During the term in which the Dissertation defense occurs, the student must be enrolled for a minimum of one credit hour. The student must have filed with the Office of Graduate Studies an "Application for the Degree" form (the deadline to apply for graduation is the first Friday of the term in which the student hopes to graduate). The Abstract of the Dissertation should be submitted to Systems Science three weeks prior to the oral defense to allow time for its approval and distribution.

Any term in which the student makes use of University facilities, services, or staff, the student is expected to enroll for the appropriate credit hours, even after 27 hours of 603 have been taken. (See University policy on continuous enrollment in a current bulletin.)

2. Progress in Dissertation. Minor deviations from the original proposal may be permitted, at the discretion of the student's Committee. Major modifications of the Dissertation Proposal, however, may require a change in the student's Dissertation Committee, additional coursework, and further comprehensive examinations.

The principal dissertation advisor will keep the Dissertation Committee abreast of the student's progress, and, as appropriate, schedule meeting(s) for the Committee with the student for discussion, evaluation, and suggested modifications of work in progress.

Students are encouraged to plan their schedules realistically, as it is easy to underestimate the amount of time it takes for this phase of the Ph.D. program. This is especially true for the "final stage" of writing up the results of the dissertation research, as the writing process may reveal that a substantial amount of unanticipated and additional research work is actually required before the dissertation can be properly completed.

When the student thinks the dissertation is in its final form, a copy will be given to each of the Committee members, who will be allowed a minimum of four (4) weeks to read and evaluate it. After this review, the Committee will meet with the student and decide if the dissertation is ready for public presentation and final defense, and if so, will schedule the final Oral Examination (dissertation defense). An Abstract of the dissertation may be approved at the same meeting. The Abstract must be published and distributed at least two (2) weeks before the date of the Oral

Examination. All expenses involved in preparing copies of the dissertation (and before that, the proposal) are to be borne by the student.

3. Defense of the Dissertation. Upon tentative approval of the dissertation, the candidate's Dissertation Committee (including the representative of the Vice Provost for Graduate Studies) shall conduct a final oral examination. The student is required to provide a copy of the latest draft version of the tentatively approved dissertation for each member of the examining committee per the schedule given in the previous section. The examination, which is open to the public, culminates the doctoral studies. The candidate is expected to prepare and present orally a formal statement on the research methodology and results. The oral presentation should not exceed 30 minutes. Following this presentation, the candidate must defend the dissertation as a worthy contribution to knowledge in its field and must demonstrate mastery of the field of specialization as it is related to the dissertation. The purpose of the questioning and discussion is to: (1) further illuminate, for the candidate and the committee, the significance and limitations of the research, and (2) demonstrate that the candidate has met the high standards of the University for the award of the doctoral degree.

As noted in the PSU Bulletin, all committee members, or alternates approved by the Vice Provost for Graduate Studies, must be present for the final oral examination. Each appointed member has a vote. For dissertation approval, there can be no more than one dissenting vote on the final examination.

The Graduate Studies representative participates in conducting the final oral exam and in the vote for pass or no-pass. The role of the Graduate Studies representative is defined by documents given to the representative by the Graduate Studies Office. The Committee and the student should be aware that the representative's vote influences the Vice Provost's approval/disapproval of the dissertation.

The Committee may pass the student subject to the completion of specified minor modifications to the dissertation.

If the final oral examination is not satisfactory, the advisory committee may recommend that the Vice Provost for Graduate Studies permit the candidate to take another oral examination after a period of further work.

4. Regulations & Time Limitations. The final oral examination shall not be given until the general University residency requirements have been met.

The final oral examination must be taken not later than five calendar years after advancement to candidacy. Failure to complete all requirements for the degree within the five years will invalidate the candidate's passing of the comprehensive examination. Readvancement to candidacy requires the passing of the regular, or a special, Comprehensive Exam. Approvals for readvancement are required by the Director of the Program and the Vice Provost for Graduate Studies.

The Dissertation must conform to the regulations specified in the "Information Regarding Thesis and Dissertation Approval" document, available from the Office of Graduate Studies. Also students must obtain the microfilming packet from Graduate Studies about two weeks before graduation.