

ACADEMIC INFORMATION

2016-17

Campus Resources

Graduate Advisor

Graduate Advisors handle graduate Student Affairs, one who deals with recruitment and admission of new students and matters concerning enrolled students. The Graduate Advisors are nominated by the Chair of the Department and approved by the Graduate Dean annually.

Dr. Weixin Yao

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Graduate Student Affairs Officer

Perla Fabelo

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Additional Campus Resources

Graduate Division

www.graduate.ucr.edu

Univ. Office Building, Room 141

Riverside, CA 92521

Phone: (951)827-3313

UCR Campus Store (www.ucrcampusstore.ucr.edu)

GROWL (ucribm.ucr.edu/Paws/PAWS.html)

Teaching Assistant Development Program (TADP) (www.tadp.ucr.edu/tadp-services/)

Student Business Office (www.sbs.ucr.edu)

M.S. in Statistics

The Master of Science in Statistics degree emphasizes a broad understanding in Statistics and its application. The M.S. students are required to have fundamental statistical knowledge in probability theory, linear models and experimental design, have the ability to use fundamental statistical techniques to formulate problem and solution in diverse real-world application, the ability to use at least one statistical software package to conduct statistical data analysis and the ability to communicate with researchers in statistical community and other disciplines by using graphical methods to display and interpret information.

Admissions

Students entering the Master's program must have completed a bachelor's degree with a strong background in Statistics and sufficient training in Mathematics or take the following undergraduate upper division courses, which are not counted towards the Master's degree units:

STAT160A, 160B, 160C, Elements of Probability and Statistical Theory, 4 units each.

STAT 161, Introduction to Probability Models, 4 units.

STAT 170A, Regression Analysis, 4 units.

STAT 170B, Design of Experiments, 4 units.

STAT 171, General Statistical Models, 4 units.

Students must also meet the other requirements for admissions as specified by the Graduate Division. The program is Plan II (comprehensive examination) described in the Graduate Studies section of the catalog. No foreign language is required.

The M.S. Requirements

The general requirements of the Statistics Graduate Program include:

- Completion of coursework: Graduate students in Statistics must take (or have taken) appropriate courses in Mathematics to give them the proper background for graduate work in Statistics. Important areas include Calculus (at least MATH 009A, MATH 009B, MATH 009C, and MATH 010A) and Linear Algebra (at least MATH 131).
- Course Requirements – 41 units
- Completion of written comprehensive qualifying exams

The normative time for completion of the M.S. degree requirements is 6 quarters (2 years) with minimum **41** quarter approved units of graduate (200 level) work.

1. **Complete course requirements:**

STAT 201 A, B, C, Theory of Probability, and Statistics, total 12 units

STAT 202 A, B, C, total 12 units

STAT 206 Statistical Computing, 4 units

STAT 208 Statistical Data Mining Methods (previously STAT 209A), 4 units

STAT 288 Literature Seminar, 1 unit

STAT 293 Methods in Applied Statistics. Two consecutive quarters is required for a total of 8 units.

2. **Complete Comprehensive Examinations:** MS students must pass a single MS level qualifying exam which consists of two types of questions: Theoretical and Methodological. The exam is offered two times, approximately 1 month into the spring quarter and then a second time near the end of spring quarter. All students are advised to take their exam for the first time in the Spring of their 2nd year, however exceptions can be made for well-prepared students. If any student fails their first attempt at the exam, they have the opportunity to take the entire exam one more time. No more than two attempts are allowed to pass the written exams. If a MS student fails on their 2nd attempt, they will be dismissed from the program (see qualifying exam process policy on page 31). **Students must be enrolled or on Filing Fee status in order to take the exams.**

Students are advised to have command of the following courses; however, qualifying exams may include other topics aside from: STAT201ABC, 202ABC, 205, 206, and 293AB.

A program proposal is not required.

3. **Professional Development Requirement:**

Two quarters of SAT 293 give students training in (a) the ability to use fundamental statistical techniques to formulate problem and solution in diverse real-world application; (b) the ability to use at least one statistical software package to conduct statistical data analysis; (c) the ability to communicate with researchers in statistical community and other disciplines by using graphical methods to display and interpret information.

4. **Satisfactory Academic Progress:**

For all students, evaluations of progress are carried out each spring by the Graduate Advisor, who is responsible for making specific recommendations to the Graduate Division concerning the student's progress. Students are notified in writing of the results of the annual evaluation, and copies are forwarded to the Graduate Division and kept in student's file.

Unsatisfactory Academic Progress:

It is hoped that you will make good progress in your degree program. Failing to do so will have serious consequences for your career in graduate school. If your GPA drops below the minimum level of 3.00, if you have 12 or more units of "I" grades, or if your advisor feels that you are not advancing as you should, the Graduate Division can and will block your registration.

5. **Advancement to Candidacy in the Master's Program**

The forms for advancement to candidacy are obtained at:<http://graduate.ucr.edu/advancement2.html>

Completed applications are returned to the Graduate Student Affairs Officer (Perla Fabelo) and processed through the Graduate Advisor and Graduate Division for approval. Students can't graduate with a Grade Delay or Incomplete grades.

Petition to Change Degree Objective from the MS to the Ph.D.: Petitions to Change Degree Objective are submitted a year in advance and no later than January 5th for consideration to start the Ph.D. the following fall quarter. Two new letters of recommendation from UCR Statistics faculty are required with the petition. The department will determine eligibility based on the following requirements: Pass comprehensive exams Part I at Ph.D. level and Part II, excellent performance in classes, completion of Ph.D. required coursework and strong recommendation by faculty on student's ability to conduct research. Students with marginal pass on Part II comprehensive exams will be requested to submit extra evidences for eligibility. The MS students would have to compete with new Ph.D. applicants and the final

admission decision will be made by the department graduate admissions committee.

Forms Needed Towards End of Degree: There are several forms that M.S. students will need to complete, such as Advancement to Candidacy and Graduation forms. For international students, additional forms may include Optional Practical Training (OPT) and Curricular Practical Training (CPT).

Submit these forms to Perla Fabelo (not the Graduate Advisor), at least two weeks before the deadlines to ensure time to process for review and approval by the Graduate Advisor. If forms are submitted less than two weeks, approvals may not be guaranteed. Avoid any delays and submit your forms early.

MS advancement to candidacy due:

A month before the end of the quarter advancing to candidacy.

Commencement Petition due: Mid-March.

OPT Application due: (90 days in advance of your completion date and when you plan to begin work, and up to 60 days after your completion date).

CPT Application due: At least two weeks before completion of degree.

(These forms will be voided if students do not pass comprehensive exams)

Ph.D. in Applied Statistics

The Doctor of Philosophy degree is awarded in recognition of high scholarly attainment as evidenced by a period of successful advanced study, the satisfactory completion of prescribed examinations and the development of an acceptable dissertation covering a significant, original aspect of Statistics.

Ph.D. students are required to demonstrate proficiency in fundamental areas in statistics including probability theory, statistical inference methodologies, statistical computing techniques, multi-disciplinary collaborations and can apply such knowledge to address complex problems in Applied Statistics.

Normative time to degree is 15 quarters (5 yrs.).

Admissions

Students entering the program must have completed either a bachelor's degree or a Master's degree in Statistics, Computer Science, Mathematics, or some other quantitatively based discipline. Students lacking sufficient preparation for some statistics graduate classes must complete some preparatory work in Statistics, Computer Science, or Mathematics depending on their background. Students also have to meet the general requirements listed in the Graduate Studies section of the catalog.

The Ph.D. Requirements

The general requirements of the Applied Statistics Ph.D. Program include:

- Completion of coursework
- Completion of written comprehensive qualifying exams
- Completion of three quarters of teaching
- Completion of Oral Qualifying Exam
- Preparation of the Ph.D. dissertation
- Successful submission of Dissertation Defense

The normative time for Ph.D. completion is fifteen quarters (5 years). During the second academic year, students are encouraged to complete the passing of the written comprehensive exams. After passing the comprehensive exams, students should start thinking about their research project and identify a Major Professor to have sufficient time to prepare for the Oral Qualifying exam. Most coursework and preparation for written and oral qualifying examinations are expected to be completed during the first two years. The remaining 2-3 years are devoted to research, the writing and defense of the Dissertation, the participation in graduate seminars and additional coursework.

Achieve the following goals:

1. During the first year, maintain a 3.0 GPA in order to retain Fellowship and in years 2-5 maintain a 3.00 GPA to retain TA/RA employment.
2. Pass the written and oral qualifying examinations. International students should plan to advance to candidacy before the beginning of the 7th quarter (of the 10th quarter effective for students entering in fall 2017) to qualify for reduced NRT for 9 quarters. Otherwise non-resident tuition will need to be paid by the student or PI on the next term until student advances to candidacy.
3. Prepare an original written Dissertation proposal.
4. Produce and submit a Dissertation by the end of your fifteenth quarter.

I. Complete course requirements:

(A) Core Requirements:

STAT 202 A/B/C Regression, ANOVA, and Design - 12 units.

STAT 206 Statistical Computing - 4 units

STAT 207 Statistical Computing - 4 units.

STAT 208 Statistical Data Mining Methods (previously STAT 209A) - 4 units.

STAT210A/210B Advanced Theory of Probability and Statistics - 8 units.

STAT 288, Literature Seminar, 1 unit.

STAT 293 Statistical Consulting and Data Analysis. Two consecutive quarters, total 8 units.

- #### **(B) 20 units of additional 200 level Statistics courses not graded S/NC, excluding STAT201A/B/C and STAT231A/B.**

(C) Substantive Fields: 4 units (or equivalent) in Substantive Field(s) with a minimum GPA of 3.00 appropriate to the student's interest. The requirement may be waived if the student already has the background in the Substantive area. Any of these courses will meet this requirement:

BIOL201, BMSC252, BPSC234, CS234, ECON205C, ECON285E-K, EDUC212, EDUC213, EDUC218, EDUC234, EDUC287, GEN220, GEN240A, GEN240B, MGT202, MGT203, MGT205, MGT211, MGT233, MGT235, SOC203B.

Courses outside of the suggested list above would need to be approved by the Graduate Advisor.

No foreign language required.

2. **Complete teaching requirement:** A minimum of three quarters of service as a Teaching Assistant regardless of whether financial support comes from Fellowship or Research Assistantships, etc. All students will participate in the Graduate Division's Teaching Assistant Development Program (TADP).

All new UCR Teaching Assistants must attend the mandatory new TA orientation. TADP offers one-in-person orientation per year. That means, even if you are not TA'ing until winter or spring quarter, you need to attend the September orientation. **TADP will no longer offer make-up online orientations.** Failure to attend the orientation will make you ineligible to TA at UCR. See the TADP website for schedules and contact information: tadp.ucr.edu.

Each quarter, Statistics Department Teaching Assistants are required to attend a mandatory TA orientation conducted by the department. Failure to attend this orientation may result in the loss of your TA position. All Teaching Assistants are required to be available for work from the first day of the quarter through the last day of the quarter (last day of Final Exams week).

SPEAK TEST: All international students must take the SPEAK test and obtain a passing grade before they can be appointed as a TA. Students receiving a "*clear pass*" on the SPEAK test (scores ≥ 50 out of 60) have no further requirements and can be appointed to TA positions. Students receiving a "*conditional pass*" (scores of 40-45) can be appointed as a TA for three quarters, but are required to take English classes at the Learning Center and retake the test. Their TA appointment is on a probationary basis with the approval of the Graduate Dean.

Students receiving a “no pass” (scores of 20-35) may not be appointed as a TA until they have retaken the test and obtained a clear or conditional pass. Contact Stacy Sweeney at the UCR Extension Center for more information regarding the SPEAK test: (951) 827-1701 (esl@ucx.ucr.edu).

- 3. Complete Written Qualifying Examinations:** Ph.D. students must pass a single Ph.D. level qualifying exam which consists of two types of questions: Theoretical and Methodological. The exam is offered two times, approximately 1 month into the spring quarter and then a second time near the end of spring quarter. All students are advised to take their exam for the first time in the Spring of their 2nd year, however exceptions can be made for well-prepared students. If any student fails their first attempt at the exam, they have the opportunity to take the entire exam one more time. No more than two attempts are allowed to pass the written exams. If a Ph.D. student fails on their 2nd attempt but received MS pass on either the first or the second attempts and has not received MS degree in statistics from elsewhere, he/she is out of the program with MS degree, otherwise he/she is out of the program without degree (see qualifying exam process policy on page 31) **Students must be enrolled or on Filing Fee status in order to take the exams.**

Students are advised to have command of the following courses, however, qualifying exams may include other topics aside from: 210AB, 202ABC, 205, 206, 207, and 293AB.

In preparation for the written qualifying examinations, a student can register for up to 6 units of STAT 291 (individual studies in coordinated areas) only during quarters that the student participates in qualifying examinations.

After passing the written exams the student will work with advisor to prepare for the oral Examination. Advancing to Candidacy takes place when students complete all the course requirements for the Ph.D. program and passes the written and oral exams. **We expect students to complete the qualifying exams before the beginning of the third year.**

- 4. Oral Qualifying Exam:** Oral qualifying examination conducted by the Qualifying Committee in accordance with the regulations set forth in the UC Riverside Graduate Student Handbook. The Qualifying Committee, consisting of at least five members, nominated in consultation of the Graduate Advisor and the student’s Major Professor, and will be officially approved by the Graduate Dean.

The Major Professor is the chair of the Qualifying Committee. One member of the Qualifying Committee, not from the Student's academic unit, will be designated as the outside member.

The Committee reads and evaluates the research proposal and conducts the examination. Oral exams typically last about 2-3 hours, consisting of a short (50 minutes) presentation of the research proposal by the student, followed by a question and answer period. No more than two attempts to pass the oral examination will be allowed. **(See Oral Qualifying Exam Procedures)**

5. **Work on the Dissertation:** The Dissertation Committee will be chaired by the student's Major Professor. Typically, three members of the committee will be selected (additional member may be added) from the faculty who were on the Oral Qualifying Committee. The student is required to submit a written dissertation proposal to the Dissertation Committee for comments and approval. Normally, it's in the format of an appropriate funding agency (e.g., NIH, NSF, etc.) and including detailed descriptions of the proposed research. For more information on the dissertation format, and how to submit an electronic copy go to: <http://graduate.ucr.edu/dissertation.html>
6. **Dissertation Defense:** Before the dissertation is given final approval, the student must meet with the Dissertation Committee for a public oral defense on the dissertation research in accordance with the regulations of the **Graduate Division**.
7. **Maintaining Satisfactory Academic Progress:** Normative time for the Ph.D. degree in Applied Statistics is fifteen quarters (five years). Normative time is defined as the period of full-time registration required to earn the degree, assuming that the student enters with a bachelor's degree and has no course deficiencies or need to take any remedial work. For most programs at UCR, this falls between five and seven years. Because the Ph.D. is a research degree, the University gives programs considerable latitude in establishing degree requirements.

Students approved to change degree objective from the MS to the Ph.D. typically finish in 9 additional quarters. In the Applied Statistics Graduate Program the individual student's program of study is planned in consultation with the Graduate Advisor, who supervises the student's progress prior to the appointment of the major professor. After the student advances to candidacy, the dissertation committee oversees the student's progress in the final stages of his or her degree program.

Student's evaluation of progress is carried out each academic year by the Graduate Advisor, who is responsible for making specific recommendations to the Graduate Division concerning the student's progress.

The Graduate Advisor may also approve exceptions to the normal time schedule occasioned by unusual circumstances. Students are notified in writing of the results of the annual evaluation, and copies are forwarded to the Graduate Division.

Unsatisfactory Academic Progress: It is hoped that you will make good progress in your degree program. Failing to do so will have serious consequences for your career in graduate school. If your GPA drops below the minimum level of 3.00 (3.50 for Fellowship recipients), if you have 12 or more units of "I" grades, or if your advisor feels that you are not advancing as you should, the Graduate Division can and will block your registration. In addition, opportunities for receiving funding through the Program become severely limited.

8. Professional Development Requirement

- a. STAT 293 gives students training in (a) the ability to use fundamental statistical techniques to formulate problem and solution in diverse real-world application; (b) the ability to use at least one statistical software package to conduct statistical data analysis; (c) the ability to communicate with researchers in statistical community and other disciplines by using graphical methods to display and interpret information.
- b. Professional writing development: Students are trained to prepare a research proposal on topics relevant to the student's research area as part of their written qualifying exam.
- c. Pedagogy: Ph.D. students are required to enroll in Teaching Assistant Development Program (TADP) Orientation to TA and enroll in STAT 302 during the quarter they teach. Three quarters of TA experience required.

Obtaining an MS Degree While in the Ph.D.: Students who have satisfied all requirements for the Master's degree, while completing the Ph.D. may apply for the MS degree.

Change Degree Objective: Students terminating the Ph.D. and satisfying the MS degree requirements can leave the program with an MS degree. Complete a petition to change degree objective to graduate with an MS degree.

Oral Qualifying Exam Procedures

- **Nominating Qualifying Committee:** Five committee members are nominated which most are affiliated with the program and should normally be voting members of the UC Academic Senate. The first three faculty members are from the Statistics Department, the fourth faculty member is from a Substantive Field and the fifth member is designated as the “Outside Member” not holding an appointment in the student’s graduate program that will ensure fairness as ‘third party’. The outside member’s field may be unrelated to the student’s field of study and other committee members. Exceptions must be supported by a memo of justification from the Graduate Advisor.
- Notify Perla Fabelo, Graduate Student Affairs Officer, by completing the online form at: <https://ucrbgsac.wufoo.com/forms/statphd-oral-exam-request-form-copy/> at least four weeks prior to the Qualifying Examination. The Qualifying Committee must be approved by the Graduate Advisor and the Graduate Division prior to the Oral Qualifying Examination.
- Note: International students need to advance to candidacy by the first day of instruction of fall quarter of the third year to qualify for reduced non-resident tuition. Otherwise non-resident tuition will need to be paid on the next term until student advances to candidacy.
- The Graduate Student Affairs Officer completes the Report of Departmental Requirements for the Ph.D. degree, which the Graduate Advisor certifies that the student has fulfilled all course requirements and notes any remaining deficiencies.
- The Graduate Student Affairs Officer will prepare the Report of the Qualifying Examination Form ‘3’ and give the form and the student’s academic file to the Chair of the student’s Qualifying Committee a few days before the oral exam.
- Upon completion of the exam, the committee chair obtains the committee members’ signatures on the Form ‘3’ report and returns it with the student’s file to the Graduate Student Affairs Officer, who then forwards it to the Graduate Division. This must be done within 48 hours after the exam is completed. Advancement paperwork is then processed. Once completed, the student is charged a fee which will later be used to microfilm the student’s dissertation.

The Dissertation Committee Chair (and the rest of the committee, if possible) should be named at the time of the Oral Qualifying Examination and avoid a registration hold.

Outline of Target Dates for Ph.D. degree

Name _____

Entered degree program _____

	Target Date	Date Completed:
Year 1		
Courses	Fall quarter	_____
Courses	Winter quarter	_____
Courses/Annual review of progress	Spring quarter	_____
Year 2		
Courses	Fall quarter	_____
Courses	Winter quarter	_____
Courses/Written qualifying examination/Annual review of progress	Spring quarter	_____
Year 3		
Oral qualifying examination	Summer quarter	_____
Courses/Oral qualifying examination (International students must advance by the first day of fall quarter to qualify for reduced non-resident tuition)	Fall quarter	_____
Courses/Oral qualifying examination	Winter quarter	_____
Courses/ Written qualifying examination/Oral Qualifying examination /Annual review of progress	Spring quarter	_____
Year 4		
Research Units/Meet with dissertation Committee	Fall quarter	_____
Research Units	Winter quarter	_____
Research Units/Annual review of progress	Spring quarter	_____
Year 5		
Research Units/Meet with dissertation committee	Fall quarter	_____
Research Units/Meet with dissertation Committee	Winter quarter	_____
Annual review of progress /Defend Dissertation	Spring/Summer	_____

Qualifying Exam Policy

Process Policy

All graduate students must demonstrate their proficiency in statistical theory and methods by passing a comprehensive qualifying exam.

Students must be enrolled or on Filing Fee status to take exams for them to count.

There is a single qualifying exam for each student that they must pass – a PhD level qualifying exam for Ph.D. students and a M.S. level qualifying exam for M.S. students.

Both M.S. and Ph.D. comprehensive qualifying exams consist of two types of questions: Theoretical and Methodological. The MS level qualifying exam is a proper subset of the PhD level qualifying exam. Questions for the qualifying exams are composed by a qualifying exam committee within the Department. Both M.S. and Ph.D. comprehensive qualifying exams are offered twice each year during the Spring quarter approximately 1 month into the spring quarter and then a second time near the end of spring quarter.

All students are advised to take their exam for the first time in the Spring of their 2nd year; however, exceptions can be made for well-prepared students.

Students need to sign up with Paula Lemire four weeks before the exam. If a student needs to withdraw the exam that they signed up for due to certain circumstance, the student will need to inform Paula Lemire and the graduate advisor at least one week in advance and obtain approval from the graduate advisor.

If any student fails their first attempt (either Not Pass or M.S. Pass for Ph.D. students and Not Pass for M.S. students) at the exam, they have the opportunity to take the entire exam one more time. No more than two attempts are allowed to pass the written exams. If a Ph.D. student fails on their 2nd attempt but received M.S. pass on either the first or the second attempt and has not received M.S. degree in statistics from elsewhere, he/she has earned the MS degree, but is out of the Ph.D. program. If a M.S. student fails on his/her 2nd attempt, he/she is out of the program without degree.

M.S. students can opt to take the Ph.D. qualifying exam if they are interested in changing their degree objective from M.S. to Ph.D. within one year after finishing the M.S. program. If an M.S. student is interested in going into the Ph.D. and

passes the Ph.D. qualifying exam, the department admission committee will meet and recommend either for an approval or denial to change degree objective.

Ph.D. students can opt to take just the M.S. qualifying exam if they plan to change degree objective from Ph.D. to M.S. within two years of entering the Ph.D. program.

Feedback Policy

The qualifying exam committee reads the exam and makes a Pass or Fail determination for each student.

Students taking either the M.S. or Ph.D. qualifying exam will be informed by the Graduate Advisor whether they passed or failed at M.S. or Ph.D. level.

Students can request a meeting with a suitable faculty member to discuss their performance on the qualifying exam. Particularly in the cases where a student has failed an exam, the Department encourages this meeting so that the student can understand what areas of the exam were poorly performed. A student's solution to an exam will be permanently retained as part of their student file.

Appeal Policy

Graduate students who have failed an exam on their second attempt have the opportunity to appeal the failed decision. However, valid grounds for appeal are limited to three areas:

- 1) Evidence of a procedural error.
- 2) Evidence of non-academic criteria being used to evaluate academic work, including personal bias and violations of the campus nondiscrimination policy.
- 3) Evidence of medical and/or family hardships that interfered with their preparation and/or performance during the exam.

Students who wish to appeal should submit a written request for appeal, along with pertinent evidence that justifies the request, to the Graduate Advisor or the Department Chair within 6 weeks after the exam.

The written appeal request should, at a minimum, clearly specify the grounds for the appeal request. Additional supporting documentation, as pertinent, should be included in the appeal request.

The standing appeals committee including graduate advisor and two department faculty appointed at the start of each academic year, will review the appeal

request within 7 days of the submission date and vote on Accepting or Rejecting the appeal request.

In the cases where the appeal addresses areas (1) or (2) above, the Graduate Advisor or the Department Chair will immediately inform the student of the decision that was reached. If the appeal is approved, the student will be granted an opportunity to take either the next offering of the exam, or the offering after that. If the appeal is rejected, the student will be advised they have the right to appeal the decision to the Graduate Dean.

In the case where the appeal addresses area (3) above, the Graduate Advisor or the Department Chair will immediately inform the student and the Graduate Division of the Department recommendation that was reached. The student will also be informed that the Graduate Division will review and consider the Department recommendation and render a final decision on the appeal. If the Graduate Division approves the appeal, the student will be granted an opportunity to take the exam either at the next offering of the exam, or the offering after that. If the Graduate Division does not approve the appeal, the appeal process terminates.