College of
Agriculture
Department of Experimental Statistics

Student Handbook

Graduate Study in Applied Statistics

Student Handbook

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Department of Experimental Statistics

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Graduate Faculty:

Professors: Blouin, Escobar, Geaghan, Koonce, Marx
Associate Professors: Monlezun, McCarter, Li
Assistant Professors: Guo

The Master of Applied Statistics Degree

Major Area of Study: Applied Statistics
Degree: M.Ap.Stat.

The Master of Applied Statistics degree involves the application of sound statistical methodology to the solution of quantitative problems from many subject matter areas. Students with undergraduate backgrounds in the agricultural, behavioral, or biological sciences, as well as those from the physical and mathematical sciences, are urged to apply. Prospective students who are otherwise qualified but lack sufficient mathematics background may be admitted and allowed to schedule appropriate courses without credit toward the degree.

Faculty research interests include statistical applications in such areas as agriculture, forestry, wildlife, fisheries, and the various social and physical sciences, among others. Students work closely with faculty members in the solution of statistical problems. For the non-thesis option, development of statistical applications through extensive interdisciplinary statistical consulting is required. A thesis is required for the thesis option. Additional training in applications is obtained through practicum courses.

The non-thesis degree option requires completion of 36 semester hours, including a 14 hour core (consisting of two courses in statistical theory and two courses in statistical methods), nine hours of advanced statistics courses, nine hours in a minor area, and four hours of professional courses. The thesis degree option requires completion of 36 semester hours, including the 14-hour core, 12 hours of advanced statistics courses, four hours of professional courses, and six thesis research hours. Students completing the degree are prepared to serve as statisticians or to pursue advanced graduate work. Employment opportunities exist for applied statisticians in business, industry, government, and in educational and research organizations. Students often obtain the Master of Applied Statistics along with a master's or doctorate degree in another field.

Application Procedure

Students interested in applying for graduate study in the Department of Experimental Statistics should complete the following steps.

1. Complete the online application for admission to the LSU Graduate School.

    https://app.applyyourself.com/?id=gradlsu

2. Submit an application to the Department of Experimental Statistics. Complete the Application to the Master of the Applied Statistics Program, a *Word* document available online at the link below. If you are not applying for an assistantship, do not complete pages 3-4.

   http://www.stat.lsu.edu/MApStatApplctnAsst.doc.

   E-mail the *completed form* with a *current resume* and *letter of application*, in Microsoft *Word* or PDF format, stating your interests, goals, objectives, and qualifications to Ms. Sylvia S. Atkins at satkin2@lsu.edu. Application deadlines are May 15 for the fall semester and October 15 for the spring and summer semesters.

3. Have three individuals who know your academic and professional qualifications send letters of recommendation directly to the head of the Department of Experimental Statistics.

Admission to the Degree Program

The faculty of the Department of Experimental Statistics evaluates each application for admission to the Masters of Applied Statistics program. Graduate School requirements for regular admission are:

- A bachelor's degree from a regionally accredited U.S. 4-year institution or the International equivalent.
- An undergraduate grade point average of at least 3.00, either overall or on the last 60 hours of undergraduate work, and a satisfactory record on previous graduate work.
- A satisfactory score on the GRE or GMAT.
- A score of 550 (paper based) or 213 (computer based) on the TOEFL as required for certain international applicants.
- Official transcripts from each college or university previously attended.

Students who have not satisfied a particular requirement may be admitted provisionally or probationally if circumstances warrant. To complete the program successfully, students need a working knowledge of multidimensional calculus and linear algebra. Qualified students who have not had adequate training in mathematics can be admitted and allowed to schedule appropriate courses to satisfy this requirement without credit toward the degree. Previous background in probability or statistics is desirable, but not required.

Financial Aid

The Department will try to help qualified students locate financial assistance to help with their expenses. The most common financial assistance is through an assistantship awarded by the department.

Graduate assistantships are available in the Department of Experimental Statistics to support our graduate program. Assistantships are awarded to students on a competitive basis with the approval of the department head. Academic qualifications and ability to carry out assistantship duties are the major considerations in awarding assistantships. In addition, some assistantships are funded by grants and contracts, and these assistantships may require special skills or qualifications. Only students with strong academic records will be appointed to a graduate assistantship.

Applications for assistantships are accepted throughout the year.

Completed applications should be submitted at the same time as the Application to the Master of Applied Statistics Program. The department will normally provide assistantship support only up to a maximum of two calendar years. Contact the department head for more information.

Student Responsibility and Standards

According to Graduate School regulations, graduate students are considered to be in good standing and making satisfactory academic progress if they earn a 3.0 cumulative average on all graduate course work taken within the LSU system and a 3.0 semester average on all course work at the graduate and undergraduate levels. A student who does not satisfy these minimum standards will be placed on academic probation by the Graduate School and may not be appointed or reappointed to a graduate assistantship until the student's cumulative grade point average is at least 3.0. A student whose semester or cumulative average is as low as 2.75 may be dropped from the Graduate School without a probationary period. A student already on probation whose cumulative or semester GPA is below 3.0 will be dropped from the Graduate School. For these purposes a summer term is counted the same as a regular semester. The grades recorded determine the student's academic status even if the student changes to a different graduate degree program.

Graduate students are expected to assume full responsibility for knowledge about Graduate School and departmental policies, requirements, and deadlines. Degree programs are subject to change, and it is the student's responsibility to be aware of such changes. Information about changes is available from the Graduate School, the department, and the Graduate Bulletin.

Course Loads

Graduate assistants are required to register as full-time students, that is, at least 9 credit hours in the spring and fall semesters, at least six of which must be at the graduate level, and 6 hours in the summer distributed among Sessions A and B, at least three of which must be at the graduate level. Graduate assistants must maintain full-time status to retain their assistantships.

Requirements for the Master's Degree

Graduate Advisory Committee

During the first semester in graduate school, the student selects a major professor. In conjunction with the major professor, the student (1) selects a graduate advisory committee, (2) chooses a minor area for the non-thesis option, (3) prepares a biographical summary, and (4) completes a proposed program schedule.

http://www.stat.lsu.edu/ProgStudyForm.doc

http://www.stat.lsu.edu/ProgStudyFormExample.pdf

Once the program of study is completed, the student distributes this information to the committee members and the department head for signatory approval.

Final acceptance of the Master's program rests with the Graduate Advisory Committee made up of three members of the graduate faculty proposed by the graduate student and formally appointed by the department head. The major professor is usually the chair of this committee. One member of the committee must be a full member of the graduate faculty from the Department of Experimental Statistics and one member must represent the minor area. Any subsequent changes in the proposed program must be approved by the student's committee.

Degree Requirements

The degree requires completion of 36 semester hours for both the non-thesis and thesis options, including a 14-hour core of two courses in statistical theory and two courses in statistical methods. The department's policy is that only EXST courses may be used to satisfy the course requirements, with the exception of the minor field courses. However, in limited and unusual circumstances, courses from other curricula may be used to satisfy the elective courses requirement. To effect such an exception, the student must submit a written request and justification, and the student's advisory committee must approve the request. No course may be substituted that substantially duplicates the coverage of an EXST course.

Under some circumstances, the Graduate School allows students to transfer up to 12 hours toward the degree from other schools with the approval of the department head and the Dean of the Graduate School. See the LSU Graduate Bulletin for details. Students with or pursuing a second Master's degree from LSU can apply no more than 6 hours from the first degree toward the second.

A M.Ap.Stat. student who completed a course more than five years before graduation may not apply that course toward the requirements for the M.Ap.Stat. degree unless the student passes an exam administered by one or more faculty members selected by the student's committee. The results of this validation exam must be signed by all members of the committee and reported to the Graduate School before the request for the student's final exam will be approved.

The LSU Graduate School Bulletin is the final authority for all regulations.

Comprehensive Final Examination

Each candidate for a M.Ap.Stat. degree will be required to pass a comprehensive final examination which consists of two parts, a written comprehensive examination and a final oral examination. The two parts need not be taken in the same semester, but a student must receive a passing grade on the written comprehensive examination before the date of the final oral examination.

Students planning to take the written comprehensive examination must complete a departmental form early in the semester during which they plan to take the examination.

http://www.stat.lsu.edu/CompsApplication.pdf.

Information about the written exam procedure is available on page 7 of this handbook. At least three weeks prior to the time of the final oral examination and by the Graduate School deadline, the department must submit to the Graduate School a request for appointment of the examining committee. Deadlines are published by the Graduate School at the beginning

of each semester. Students must submit the appropriate materials to the department before this time. The oral examination is comprehensive and may cover any portion of the student's graduate work including, but not limited to, the special problem. Normally, a candidate for the M.Ap.Stat. degree will take the oral examination during the semester in which he or she plans to graduate. If a student wishes to take the oral examination at an earlier date, the student's committee must furnish the Dean of the Graduate School with a sound academic reason for doing so.

Graduation

Students must submit a Request For a Final Exam and an Application for a Degree to the Graduate School early in the semester during which they plan to graduate. Forms and information are available from the Graduate School. Deadlines are published by the Graduate School at the beginning of each semester, and it is the student's responsibility to meet these deadlines. Students must contact committee members and schedule the final oral examination early enough to comply with Graduate School requirements.

Course Requirements for the Master of Applied Statistics Degree

Core Courses (14 credits)	Credits
EXST 7003, 7004, or 7005 Statistical Methods I	4
EXST 7013, 7014, or 7015 Statistical Methods II	4
EXST 7060 Statistical Theory I	3
EXST 7061 Statistical Theory II	3

Professional Courses (4 credits)

EXST 7083 Practicum in Statistical Consulting I	2
EXST 7084 Practicum in Statistical Consulting II	2
Total credits for required core and professional courses	18

Non-thesis option (18 credits)

Three advanced EXST courses* approved by the student's graduate advisory committee	9
Graduate level coursework in a minor area of concentration approved by the student's minor professor and graduate advisory committee	9

Thesis option (18 credits)

Four advanced statistics courses of which at least three must be advanced EXST courses* approved by the student's graduate advisory committee	12
EXST 8000 Thesis Research	6

*See page 8 for a list of advanced EXST courses.

Master of Applied Statistics Written Exam Procedures

The final written exam is designed to accomplish several objectives simultaneously.

1. Evaluate a student's command of the body of information which the faculty considers to be representative of and essential to a Master of Applied Statistics Degree,

2. Give students the opportunity to apply any and all techniques and knowledge they have acquired during their program of study in responding to the exam questions,

3. Assess a student's ability to interrelate the material covered during his/her tenure in the department,

4. Allow sufficient preparation time for student study and sufficient examination time to cover the material both in terms of faculty questioning and student responding,

5. Have test questions devised and graded by appropriate faculty,

6. Ensure that a student has progressed far enough in his/her program to be adequately prepared to take the exam, and

7. Ensure that a student is fairly evaluated in reaching a pass-fail decision.

A single exam, The Final Written Exam for the Degree of Master of Applied Statistics, will be administered by a departmental committee that is assigned by the department head on a semester by semester basis. Students must complete the Master of Applied Statistics Final Written Exam Application form early in the semester in which they plan to take the exam. The exam will be designed to evaluate a student's command of that body of material which each and every Master of Applied Statistics student should possess. As such, a wide range of topics may be covered and material may be drawn from a variety of sources to yield a pool of questions which will then constitute the exam. The specific form and logistics of the exam will be the responsibility of the departmental committee, but some general guidelines will apply.

1. The committee will have extensive latitude in exam writing and allocating a specified amount of time for the exam.

2. Committee members will be responsible for grading the exam and determining whether a student passes or fails. A 70% score is a pass.

3. A student can retake the exam if failed.

4. The exam is closed book. However, if judged by the committee as needed, then supporting material such as books, tables, notes, and calculators will be made available.

5. All students taking the exam in a given semester will be given the same exam.

6. A student must obtain the signatory approval of their major advisor to take the exam.

7. The exam will be given each semester, usually two to three weeks prior to the Graduate School deadline for submitting committee examination reports

Course Requirements for a Minor in Applied Statistics

Masters Level Minor (three courses)	Credits
EXST 7003, 7004, or 7005 Statistical Methods I	4
EXST 7013, 7014, or 7015 Statistical Method II	4
One advanced EXST course*	3

Ph.D. Level Minor (six courses)	
EXST 4050 Principles and Theory of Statistics	3
EXST 7003, 7004, or 7005 Statistical Methods I	4
EXST 7013, 7014, or 7015 Statistical Method II	4
Three advanced EXST courses*	9

Ph.D. Split Minor (four courses)	
EXST 7003, 7004, or 7005 Statistical Methods I	4
EXST 7013, 7014, or 7015 Statistical Method II	4
Two advanced EXST courses*	6

*Advanced EXST Courses

EXST 7011 Nonparametric Statistics	3
EXST 7012 Fundamental Sampling Techniques	3
EXST 7022 Statistical Aspects of Quantitative Genetics	3
EXST 7023 Advanced Topics in Statistical Genetics	3
EXST 7024 Biological Population Statistics I	3
EXST 7025 Biological Population Statistics II	3
EXST 7031 Experimental Design	3
EXST 7032 Survey Design	3
EXST 7034 Regression Analysis	3
EXST 7035 Applied Least Squares	3
EXST 7036 Categorical Data Analysis	3
EXST 7037 Multivariate Statistics	3
EXST 7038 Statistical Methods for Spatial Data	3
EXST 7039 Statistical Methods for Reliability and Survival Data	3
EXST 7062 Advanced Topics in Statistical Theory	3
EXST 7087 Advanced Topics in Statistics	3
EXST 7142 Statistical Data Mining	3
EXST 7151 Bayesian Data Analysis	3
EXST 7152 Advanced Topics in Statistical Modeling	3