# The Florida State University
# Department of Statistics
# Graduate Handbook

2014

# Contents

# 1. Introduction

This handbook presents the procedures of the Department of Statistics and other useful information relevant to a student's graduate career at Florida State University (FSU). It is assumed that the reader has access to the following FSU publications:

1. The Florida State University General Bulletin
2. The Florida State University General Bulletin Graduate Edition
3. The Florida State University Graduate and Professional Student Handbook
4. The Florida State University Department of Statistics Undergraduate Handbook

These publications are freely available from the FSU Registrar's Office, the FSU Office of Graduate Studies, and the Department of Statistics. Information from these documents is not duplicated in this handbook. Where appropriate, however, reference is made to these documents.

It is recognized that much of the information in the handbook will change with time. A current copy of the handbook is maintained on the department webpage. Suggestions for changes, additions and corrections for the handbook are encouraged and should be submitted to the faculty through the Student Advisory Committee (see section 5).

# 2. Graduate Degrees

The Department of Statistics offers Master of Science degrees in Biostatistics and Statistics (with the Applied Statistics Track and the Mathematical Statistics Track under Statistics), a combined undergraduate/graduate (BS/MS) degree in statistics, and a Master of Science degree in Statistical Data Science.  The Department of Statistics also offers Doctor of Philosophy degrees in Biostatistics and Statistics.

## 2.1 Combined Bachelor's/Master's Degree in Statistics.

The combined BS/MS degree in Statistics is designed for academically strong students who wish to pursue an accelerated program that culminates in receiving a Master of Science in Applied Statistics in five years.  The following are the prerequisites for enrollment in the program:

- Completion of at least 12 credits in mathematics and/or statistics as part of an undergraduate statistics major with a GPA of 3.2 or better.
- Completion of at least 60 credits at FSU with an overall GPA of 3.0 or better.
- Transfer students must have completed at least two semesters and 24 credits at FSU with an overall GPA of 3.0 or better.
- Undergraduate students may apply as early as the second semester of their sophomore year.

If accepted, to remain in the program, the student must:
- Maintain an overall GPA of 3.0 and a GPA of 3.2 in statistics courses (4000 level or higher).
- Take the GRE during their Junior year and receive a score of at least 1,100.
- Must apply to and be admitted to the graduate school in the first semester of their senior year. Students not accepted into the graduate school cannot continue in the program.

Students in this program will be awarded the Bachelor of Science degree in Statistics when they meet the requirements of the degree at the end of their fourth year of study. They will be awarded the Master of Science degree upon meeting the requirements of this degree at the end of their fifth year of study.

Table 1 presents a sample timeline for completing the combined BS/MS degree. In addition to these courses, the student must meet all of the requirements for the BS and the MS degrees. Courses marked with an asterisk (*) are taken as an undergraduate but will count for both the BS and the MS degrees.

Any STA5XXX course, except STA5126 may be counted toward both the BS and the MS degree. For details on the undergraduate and graduate courses in the Statistics Department, see the department's undergraduate and graduate handbooks.

This is just one of many possible programs to meet the program requirements and the timeline can be changed with the inclusion of summer courses.

The student must take at least 21 credits at the graduate level while enrolled as a graduate student.

| Year | | Total credits | Relevant Courses | Special Events |
|---|---|---|---|---|
| Freshman | Fall | 15 | MAC 2311, CGS 3406 | |
| | Spring | 15 | MAC 2312 | |
| Sophomore | Fall | 15 | MAC 2313, STA 2122 | |
| | Spring | 15 | STA 4203, STA 4321, MAS 3105 | Apply to the department for entry into the BS/MS program. |
| Junior | Fall | 15 | STA 5166*, STA 4202 | Take GRE at end of year. |
| | Spring | 15 | STA 5167*, STA 4322 | |
| Senior | Fall | 15 | STA 5106, STA 5168* | Apply for admission to graduate school |
| | Spring | 15 | STA 5107* | Complete BS in May. |
| Total Undergraduate hours | | 120 | | |
| Graduate | Fall | 12 | STA 5939, STA 5326, STA 5000 elective (x2) | |
| | Spring | 12 | STA 5000 elective (x4) | Complete MS in May. |
| Total Graduate Credit Hours (Includes *) | | 36 | | |

**Table 1**: Typical courses for a BS/MS combined degree.

## 2.2 Master of Science Degrees

The Department of Statistics at FSU offers two options for an MS degree in Statistics: the MS degree in Statistics may be obtained through either the applied statistics track or the mathematical statistics. The department also offers an MS degree in Biostatistics, and an MS degree in Statistical Data Science.

1. The master degree in the applied statistics track is for a student preparing for a career as an applied statistician or as a statistical consultant at the MS level. This program emphasizes statistical methodology and consulting. The graduate degree received is a Master of Science in statistics.

2. The master degree in the mathematical statistics track places an additional emphasis upon probability theory and statistical inference. This degree prepares graduates to function as

statisticians at the MS level. It is also a preparatory program for the PhD degree in statistics. The graduate degree received is a Master of Science in statistics.

3.  The MS in biostatistics degree prepares students to apply statistical principles, processes, applications, and analytical methods to design, implement, and analyze health related studies including both experimental (clinical trials) and observational (epidemiological) studies. The graduate degree received is a Master of Science in biostatistics.
4.  The Master of Science in Statistical Data Science emphasizes hands-on training in the application of statistical methods and the use of computational and analytic software  for employment in the emerging field of data science.

All of the MS degrees provide a route to a career in statistics. Prospective students should note that the mathematical statistics and biostatistics degrees provide the best preparation for continuation into the doctoral programs (PhD in statistics or biostatistics) in this department. A student who finishes the applied statistics program can continue into a PhD program upon completion of  the core courses for the MS in mathematical statistics or the MS in biostatistics (as given in Tables 5 or 7) and pass PhD qualifying exams.

The total academic credits required for graduation for each the statistics and biostatistics MS degrees is 36 credit hours. The MS in Statistical Data Science requires 32 credit hours.  The minimum cumulative GPA in all courses is 3.0.  No more than one course for the MS degrees (Mathematical Statistics, Applied Statistics, Biostatistics, and Statistical Data Science) may be taken S/U and all required courses must be taken for a letter grade.

### 2.2.1 Master of Science in the Applied Statistics Track

Students usually begin working toward this degree during the fall semester.

The Master of Science in the Applied Statistics Track emphasizes proficiency in applied statistics, statistical consulting, and computational methods and additionally includes training in probability and mathematical statistics.  Elective course work may be taken in statistics, in mathematics, or an area of application.  Students entering this program should have had

mathematical preparation through third semester calculus with some knowledge of matrix operations being helpful.

Programs of study are developed individually in consultation between students and their academic advisors.  Each student's program of study must also be approved by the student's academic advisor and by the department chair. If a student has already taken a course listed as required, it need not be repeated. Instead, the student should substitute a more advanced course or an alternate course.

Table 2 provides the required courses for this degree. Additionally, at least four elective classes must be selected from Table 3.  Additional elective courses must be taken to bring total hours to at least 36 semester hours.

| Table 2: Required courses for MS in the applied statistics track.  All courses are 3 credit hours. | |
|---|---|
| Course Number | Course Name |
| STA 5166 | Statistics in Applications I |
| STA 5167 | Statistics in Applications II |
| STA 5326 | Distribution Theory and Inference |
| STA 5327 | Statistical  Inference |
| | |
| **At least two of the following courses** | |
| STA 5066 | Data Management and Analysis with SAS |
| STA 5106 | Computational Methods in Statistics I |
| STA 5168 | Statistics in Applications III |
| STA 5856 | Time Series and Forecasting Methods |

| Table 3: Elective Courses for MS in the applied statistics track. | |
|---|---|
| Course Number | Course Name |
| STA 5067 | Advanced Data Management and Analysis w/SAS |
| STA 5107 | Computational Methods in Statistics II |
| STA 5172 | Fundamentals of Biostatistics |
| STA 5176 | Statistical Modeling for Biology |
| STA 5179 | Applied Survival Analysis |
| STA 5198 | Epidemiology for Statisticians |
| STA 5208 | Linear Statistical Models |
| STA 5238 | Applied Logistic Regression |
| STA 5225 | Sample Surveys |
| STA 5244 | Fundamentals of Clinical Trials |
| STA 5507 | Applied Nonparametric Statistics |
| STA 5635 | Applied Machine Learning |
| STA 5666 | Statistics for Quality and Productivity |
| STA 5707 | Applied Multivariate Analysis |

| | |
|---|---|
| STA 5934 | Longitudinal Data Analysis |
| STA 5939 | Introduction to Statistical Consulting |
| STA6557 | Object Data Analysis |

A typical schedule of courses for a student who has not previously taken any of the required courses is given in Table 4.

**Table 4**: A typical course program for the MS in the Applied Statistics track.

| Year 1 | | Year 2 | |
|---|---|---|---|
| Fall | Spring | Fall | Spring |
| STA 5166 | STA 5167 | Elective | Elective |
| STA 5326 | STA 5327 | Elective | Elective |
| Required Course or Elective | Required Course or Elective | Elective | Elective |

## 2.2.2 Master of Science in the Mathematical Statistics Track

The Master of Science degree in the mathematical statistics track prepares a student for a professional career in industry or government, for a teaching career in a small college, or for further study toward the doctorate in statistics. The program emphasizes statistical theory, probability theory and mathematical analysis, as well as applied statistics.

Students selecting the mathematical statistics option have often completed the essentials of an undergraduate mathematics major. Normal entry to the program is in the fall semester. Students selecting this option without two semesters of advanced calculus (MAA 4226-7 or its equivalent) may require more than four semesters to complete their MS requirements. See Table 5 for the required courses. Additional elective courses listed in Table 3 must be taken to bring the total number of credit hours for each student to 36 semester hours.

| Table 5: Required courses for MS in the mathematics statistics track. All courses are 3 credit hours. | |
|---|---|
| Course Number | Course Name |
| STA 5106 | Computational Methods in Statistics I |
| STA 5166 | Statistics in Applications I |
| STA 5326 | Distribution Theory and Inference |
| STA 5327 | Statistical  Inference |
| | |
| **At least two of the following courses** | |
| STA 5167 | Statistics in Applications II |
| STA 5707 | Applied Multivariate Analysis |
| STA 6346 | Advanced Probability and Inference I |
| STA 6448 | Advanced Probability and Inference II |

A typical program for the student who has taken none of the required core courses is given in Table 6.  Additionally, attendance, each semester, in STA 5920r, Statistics Colloquium is encouraged.

| Table 6: A typical program for the first two years of graduate study for students pursuing the MS degrees.  All courses are 3 credits. | | | |
|---|---|---|---|
| Year 1 | | Year 2 | |
| Fall | Spring | Fall | Spring |
| STA 5166 | Required Course or Elective | STA 6346 or Elective | STA 6448 or Elective |
| STA 5326 | STA 5327 | Elective | Elective |
| STA 5106 | Required Course or Elective | Elective | Elective |

## 2.2.3 Master of Science in Biostatistics

This Master of Science in biostatistics prepares graduates for employment in private, academic and public sector research and health care settings.  The degree emphasizes the application of statistical principles, processes, applications, and analytic methods to design, implement, and analyze health related studies including both experimental (clinical trials) and observational (epidemiological) studies. The degree requirements of 36 semester credit hours include coursework in biostatistics and statistical theory and methods. See Table 7 for the required courses.

| Table 7: Required courses for MS in Biostatistics.  All courses are 3 credit hours. | |
|---|---|
| Course Number | Course Name |
| STA 5166 | Statistics in Applications I |
| STA 5167 | Statistics in Applications II |
| STA 5326 | Distribution Theory and Inference |
| STA 5327 | Statistical  Inference |
| | |
| **At least two of the following courses** | |
| STA 5179 | Applied Survival Analysis |
| STA 5198 | Epidemiology for Statisticians |
| STA 5244 | Fundamentals of Clinical Trials |
| STA 5934 | Longitudinal Data Analysis |

Flexibility is allowed in selecting additional course work for the biostatistics degree. The final selection of courses will be determined by the student, their major professor, and the thesis direction committee. Some possibilities are provided in Table 8.

A typical course of study for the MS in biostatistics is given in Table 9. The second year of such a program would consist of elective courses selected from Table 8 or selected with approval of advisor.

| Table 8: Elective Courses for MS in biostatistics statistics. | |
|---|---|
| Course Number | Course Name |
| STA 5066 | Data Management and Analysis with SAS |
| STA 5067 | Advanced Data Management and Analysis w/SAS |
| STA 5106 | Computational Methods in Statistics I |
| STA 5107 | Computational Methods in Statistics II |
| STA 5168 | Statistics in Applications III |
| STA 5172 | Fundamentals of Biostatistics |
| STA 5176 | Statistical Modeling for Biology |
| STA 5208 | Linear Statistical Models |
| STA 5238 | Applied Logistic Regression |
| STA 5225 | Sample Surveys |
| STA 5507 | Applied Nonparametric Statistics |
| STA 5635 | Applied Machine Learning |
| STA 5666 | Statistics for Quality and Productivity |
| STA 5707 | Applied Multivariate Analysis |
| STA 5856 | Time Series and Forecasting Methods |
| STA 5934 | Longitudinal Data Analysis |
| STA 5939 | Introduction to Statistical Consulting |
| STA 6346 | Advanced Probability and Inference I |
| STA 6448 | Advanced Probability and Inference II |

| Table 9: Typical courses for MS in biostatistics. | | | |
|---|---|---|---|
| Year 1 | | Year 2 | |
| Fall | Spring | Fall | Spring |
| Required Course or Elective | Required Course or Elective | Elective | Elective |
| STA 5326 | STA 5327 | Elective | Elective |
| STA 5166 | STA 5167 | Elective | Elective |

**2.2.4 Master of Science in Statistical Data Science**

**Required Coursework and typical course schedule for completing the Masters in Statistical Data Science degree (32 credit hours required):**

The Master of Science in Statistical Data Science emphasizes hands-on training in the application of statistical methods and the use of computational and analytic software geared toward producing highly employable masters degree students. In this program, students will obtain a background in applied statistical methods, and proficiency in the software packages SAS and R to solve data management and analysis problems for the most common scenarios facing data-driven decisions in government and industry. A SAS certificate offered jointly with the SAS Institute International (the world's largest statistical software provider) adds to employability and may be obtained simultaneously. The degree may be completed in three semesters and requires 32 units.

| Table 10: Required Courses for the Master of Science Degree in Statistical Data Science[&] | | |
|---|---|---|
| **Semester 1** | **Semester 2** | **Semester 3** |
| (3) STA 5166 Stat Apps I | (3) STA 5167 Stat Apps II | (3) Elective |
| (3) STA 5066 Data Management and Analysis with SAS | (3) STA 5067 Advanced Data Management and Analysis with SAS | (3) Elective |
| (3) STA 5106 Computational Methods in statistics I | (3) STA 5856 Time Series and Forecasting Methods | (3) STA 5635 Applied Machine Learning |
| (1) STA 5910 Supervised Research: Professional Skills Seminar | (1) STA 5910 Supervised Research: Professional Skills Seminar | (3) STA 5939 Introduction to Statistical Consulting (Capstone project) |

[&]**The table provides only one possible sequence for taking the required courses.**

**Elective courses may be taken from the following list. Other courses in Statistics or other departments may be taken with approval of the advisor.**

| Table 11: Elective courses for the Statistical Data Science Major can be selected from Table 8 or the following Recommended list. | |
| --- | --- |
| STA 5707 Appl Multivariate | STA 5507 Applied Nonparametric Statistics |
| STA 5168 Statistics in Applications III | STA 6468 Modern Statistical Techniques in High-dimensional Data Analysis |
| STA 5107 Computational Methods in Statistics II | |

## 2.3.  Doctor of Philosophy Degrees

The Department of Statistics at FSU offers a PhD in statistics and a PhD in biostatistics. Course programs and exact degree requirements are determined individually for students through consultation with their supervisory committee. General requirements for the PhD degree are in the FSU Graduate Bulletin.   See the FSU Graduate Bulletin for the university's degree requirements, requirements for residence, time limits for the degree, and minimum dissertation hours.

During the final semester of doctoral work, each PhD candidate must comply with a variety of university administrative requirements prior to obtaining the degree. The university also has specific requirements regarding the format for dissertations and abstracts. These requirements are issued by the Graduate School. Each candidate should become familiar with these requirements well in advance of their final semester's work.

All PhD students must take the department courses required for their degree, either the PhD in Statistics or the PhD in Biostatistics.

Students must take at least one course each semester for the first three years of study.  In the fourth year, students must continue to take a minimum of two courses, but may do all course work in one semester and none in the remaining semester, if desired.

All required coursework (as provided in the table of required courses for the degree being sought) except dissertation hours must be taken for a letter grade. The only exception to this is with regards to the interdisciplinary option discussed below.

PhD students must have a grade of B- or better in all required courses.

### 2.3.1 Doctor of Philosophy in Statistics

Students in the PhD in Statistics degree program tailor their academic programs to be consistent with their individual career objectives.   Programs can be designed to prepare graduates for careers in research and/or teaching, for careers emphasizing the application of statistics or for careers requiring the development of new statistical methodology.

| Table 12:  Required Courses for the PhD in Statistics | |
|---|---|
| Course Number | Course Name |
| STA 5106 | Computational Methods in Statistics I |
| STA 5107 | Computational Methods in Statistics II |
| STA 5166 | Statistics in Application I |
| STA 5167 | Statistics in Application II |
| STA 5168 | Statistics in Application III |
| STA 5326 | Distribution Theory |
| STA 5327 | Statistical Inference |
| STA 6346 | Advanced Probability and Inference I |
| STA 6448 | Advanced Probability and Inference II |
| **At least one of the Following  Courses** | |
| STA 6468 | Advanced Topics in Probability and Statistics |
| STA 5707 | Applied Multivariate Analysis |
| STA 6709 | Spatial Statistics |

Students entering the program with equivalent work (as determined by the faculty) from other institutions will not be required to repeat it.  However, in preparing a course program, students

should keep in mind that they are required to pass the PhD qualifying examination as one step towards the degree.

Students entering the graduate program without any prior graduate work in statistics typically begin course work by studying toward the MS degree in mathematical statistics. Students are responsible for the material normally covered in the core course work of the MS in mathematical statistics degree.

Formal requirements for course work for the PhD degree are kept to a minimum to allow for maximum flexibility in developing programs of study. Other than the requirement for the master's degree in mathematical statistics, students may select any courses subject to the approval of their supervisory committee.

Students are strongly encouraged to register for STA 6468, Advanced Topics in Probability and Statistics, whenever topics to be covered are related to the student's areas of concentration. Students are required to take this course at least once.

Students may choose to pursue research in an interdisciplinary field of study. A student following the interdisciplinary option (IO) will typically take three graduate courses in an outside area related to the student's research area. No more than one of the three IO courses may be a DIS given by another department in the IO area of specialization.

The final selection of courses will be determined by the student and major professor and supervisory committee, but some possibilities are provided in Tables 8 and 11.

### 2.3.2 Doctor of Philosophy in Biostatistics

The Doctor of Philosophy Degree in Biostatistics prepares students for specialized careers in academia, industry, and government. Program graduates will find themselves sought after by employers in such varied areas as biotechnology, public health, pharmaceuticals, AIDS research, epidemiology, insurance, food sciences, and agribusiness. With an aging US population, the development of new drugs, and advances in the understanding of biological functions at the level

of individual genes and proteins, the need for more people trained to design studies and analyze data from these research areas continues to increase.

| Table 13: Required courses for the PhD in Biostatistics. | |
|---|---|
| Course Number | Course Name |
| STA 5106 | Computational Methods in Statistics I |
| STA 5166 | Statistics in Application I |
| STA 5167 | Statistics in Application II |
| STA 5326 | Distribution Theory |
| STA 5327 | Statistical Inference |
| STA 5179 | Applied Survival Analysis |
| STA 5934 | Longitudinal Data Analysis |
| STA 6346 | Advanced Probability and Inference I |
| STA 6448 | Advanced Probability and Inference II |
| **At least one of the Following Courses** | |
| STA 5244 | Fundamentals of Clinical Trials |
| STA 5198 | Epidemiology for Statisticians |
| STA 5238 | Applied Logistic Regression |

Students pursuing a doctorate in biostatistics at FSU will be granted a significant amount of flexibility in courses taken while pursuing the PhD. The university requirements for credit hours may be found in the FSU Graduate Handbook, but students will usually take courses beyond this minimum. The department requires a minimum of 36 credit hours be taken for a letter grade. This requirement includes the required courses. All required courses must be taken for a letter grade.

Flexibility is allowed in selecting the additional course work for the biostatistics PhD. The final selection of courses will be determined by the student and major professor and supervisory committee, but some possibilities are provided in Tables 8 and 10.

### 2.3.3 Qualifying Examination

This written examination is offered at the beginning of each spring semester. It is normally taken at the beginning of the spring semester of the second academic year of work in the department. The examination is prepared, administered and graded by the graduate student awards and exams committee. This committee forwards student performance on the examination to the

graduate director and department chair to be used in the student's annual evaluation (see Section 4.3).

The examination will be graded as passed or failed. Students pursuing the PhD who receive a grade of "failed" may retake the examination in the following year. Copies of past qualifying exams are available.

The PhD qualifying exam is oriented toward problem solving. The exam consists of a list of questions grouped by topic. Students are asked to submit solutions to a given fixed number of questions chosen from this list. The material covered on the exam is taken from the first five courses listed in Table 11 and STA6346, Advanced Probability and Inference I.

Students intending to take this exam must register for STA 8964 during the fall semester. A student should register only once for this examination (and the dissertation defense). If the examination is not completed, a grade of "I" will be assigned until the examination is concluded. Upon successful completion of the examination, a grade change will be submitted assigning a grade of "P". Do not reregister for exams in which an "I" has been assigned.

### 2.3.4   Essay Examination

After successful completion of the PhD qualifying examination, the student must begin to consider a suitable topic for a dissertation. As an intermediate step between the qualifying examination and the dissertation, PhD students are required to submit an essay that doubles as a proposal for a dissertation topic.

After consultation with the major professor, the student selects a topic and begins initial investigation of the topic to determine whether a thesis in the area is desired. Following this preliminary investigation, the student writes an essay that should contain

1. A literature review of the problem, stating what is known about it to date;
2. Some preliminary research results;
3. A plan for future research.

Additionally, all PhD students will take an exam based on their essay. This examination is conducted in two parts.

1. A 40-50 minute oral presentation of the student's essay open to the entire Department of Statistics.

2. An oral examination by the student's supervisory committee. This part of the examination will immediately follow the seminar presentation. It is "closed door" and is conducted orally by the student's supervisory committee to determine success in formulating a research area and ability to do research in that area.

The essay should be written with these goals in mind. A copy of the essay should be sent to the department academic assistant and provided to the supervisory committee members at least three weeks before the essay examination.

### 2.3.5  Dissertation Defense

The dissertation defense is the last department examination for a PhD candidate. This defense follows the same two-part procedure as the essay examination:

1. A 40-50 minute oral presentation of the student's dissertation open to the entire Department of Statistics. All members of the university's graduate faculty are invited to attend the seminar.

2. An oral examination. This closed-door part of the thesis defense immediately follows the presentation and is administered by the student's supervisory committee.

Academic courtesy requires that the dissertation be submitted to each member of the supervisory committee and to the department chair at least four weeks prior to the date of the oral examination. Individual committee members may have their own requirements or policies regarding timing and it is the student's responsibility to ensure that each committee member's requirements are met and that each member has an adequate opportunity to read the dissertation. A copy of the dissertation should also be sent to the department academic assistant at least four weeks

prior to the defense.  Faculty interested in the topic may obtain a copy of the dissertation from the department academic assistant before the defense.

The defense must be completed at least four weeks prior to the date on which the degree is to be conferred. Consult the registrar's office or webpage for deadline dates. Students must enroll in STA 8985 during the term in which they defend their dissertation.

## 3. Financial Support

The department provides financial support for many of its graduate students.  The two main ways in which students are funded are through teaching assistantships and research assistantships.

### 3.1 Types of Support

Teaching assistantships are the most common type of support in the department. These are half-time appointments. Students are paid a salary in return for 20 hours of work each week during the fall and spring semesters. Limited teaching assistantships are available each summer. Teaching assistants may be called upon to perform a combination of the following duties:

1. Lecture in low-level statistics courses (STA 1XXX, 2XXX).
2. Teach recitation sections of low-level statistics courses.
3. Grade homework, projects, and exams for lower and upper level undergraduate and graduate level courses.
4. Assist FSU students at the Strozier Library statistics help desk.
5. Assist faculty with course-related tasks.
6. Assist faculty in the Statistical Consulting Center (see section 6).

Assignment of graduate students to differing duties is based on department need and student preference.

There are several university requirements that must be met before a graduate student may teach. These requirements are set forth in the document, University-wide Standards for Teaching

Assistants at Florida State University. This document is maintained by and available from the Office of Graduate Studies. Additionally, a TA must pass the departmental course "Teaching in the Discipline" before teaching.

Research assistantships are supported with funds from research contracts or grants, generally from agencies outside the university, held by department faculty. Students receiving such support assist faculty members with their research programs. Usually a student combines duties under this assistantship with their dissertation work, but the exact duties are established by the faculty member providing support.

In recognition of the differing degrees of responsibility of the above tasks, the amount of stipend provided to a student depends on the duties assigned. There are three levels of stipend in the department. The highest pay is reserved for students lecturing their own courses. The medium level is attained by those who teach recitation sections or work in the Statistical Consulting Center (see Section 6), and the third level is for the remaining students. Research assistant pay is determined by the faculty member supplying the salary.

Other avenues of support include competitive assistantships and fellowships available through the university. More general types of support include loans and grants and are administered through the university's Office of Student Financial Aid. Additionally, opportunities for employment in other university units are often available.

### 3.2 Restrictions on Support

Recipients of federal fellowships or traineeships or university fellowships must abide by the conditions of these awards. International graduate students must observe employment restrictions associated with visas issued. These regulations usually confine employment to appointments supportive of their field of study. Graduate students holding assistantships in the department or other units of the university must obtain permission for additional employment from the director of the project providing the assistantship, the faculty advisor or dissertation director, and the department chair. Any outside employment unrelated to the discipline or deemed to substantially lengthen the time to completion of the degree program may not be approved.

Holders of assistantships are required to register for at least nine hours each semester. Students are advised to consult the FSU Graduate Bulletin for the university policy regarding minimum enrollment requirements for assistantship holders and university residence requirements. Note that students not receiving support must also register for a minimum number of hours each term to meet university requirements.

The department expects all students to apply for the in-state residency tuition classification.

## 3.3   Requirements for Continued Department Support

Students receiving department financial support must complete the following to continue to receive it:

1.  Students whose primary language is not English must take and pass the SPEAK exam by the end of the spring semester of their first academic year.

2.  Master's degree students who have not been accepted for continuing to the PhD degree will not receive financial support beyond their second year.

3.  To receive department financial support, PhD degree students must:
    a)  Pass the PhD written qualifying exam by the end of their third academic year (Section 2.3.3).
    b)  Write and defend their essay by the end of their fourth academic year (Section 2.3.4).
    c)  Write and defend their thesis by the end of their fifth academic year (Section 2.3.5).

Students who do not meet these milestones may continue toward their degree, but with no department financial support.

The department chair makes the final decision on matters of continued support.

### 3.4 Tutoring for Payment

The Department receives numerous requests for tutors in statistics. Graduate students in statistics may tutor for payment subject to the following policies and procedures:

Under no circumstances is anyone to tutor, for payment, a student taking a course he or she is teaching or assisting with.   For example, a graduate student currently teaching STA 2023 may NOT tutor any student currently taking STA 2023, even if that student is in another section. The graduate student may tutor, however, a student in STA 2122.

Students may engage in tutoring only insofar that it does not detract from their graduate studies. Students on academic probation are not to tutor. Questions regarding these policies may be addressed to the chair.

Students wishing to tutor are requested to submit the following information to the department secretary: a list of courses they wish to tutor and where or how they can be contacted. The department will maintain a file on tutors giving the above information. When requests are received, the caller will be given the information in the tutor file. The department does not make recommendations.

Please remember that tutoring is suggested as a last resort for students having difficulties in their course work.  All graduate student instructors in the department are expected to make sufficient time available for office hours for student help.

## 4   Advising and Review

In addition to the requirements for continued financial support outlined in section 3.3, there are several other important tasks to be performed in a timely fashion. Failure to complete these tasks may result in a student being removed from the department graduate program.

## 4.1   Advisors and Committee Formation

The advisor provides academic counsel to the student, advises the student in the preparation of a program of study (see below), and approves the program of study. At no time will a student be without a department advisor. Master's students and students who have not yet been admitted to PhD candidacy will be advised by the graduate director.

Students who have passed the PhD qualifying examination should choose a faculty member to direct their dissertation. This selection of a major professor is a decision based upon mutual research interests of the students and their major professors. The department web- page contains faculty information and indicates research interests. Students should indicate their interests to the faculty member with whom they wish to work. Assuming the faculty member agrees, the student then forms a new supervisory committee to replace the one formed during their first term at FSU. Members of the doctoral supervisory committee are selected in consultation with the major professor subject to certain constraints. In addition to the major professor, the supervisory committee must have at least three other members: two other faculty members from the department and a tenured faculty from outside the department. All committee members must have graduate faculty status. The composition of the committee should reflect the student's research interests and areas of concentration. The composition of the committee is flexible and may be altered at the discretion of the student. Approval of the doctoral supervisory committee by the department chair is required.

The doctoral supervisory committee assumes responsibility for the student's academic advisement. It advises the student in the preparation of a doctoral program of study (see below) and must approve it.

Each year an assessment of the progress of the student is made by the student's advisor. The entire committee conducts the PhD essay examination and the dissertation defense. See section 2.3.4 and 2.3.5 for a discussion of these examinations.

## 4.2   Program of Study

A student must have on file with the department an approved program of study at all times. This document represents an agreement between the student and department delineating the course requirements the student must satisfy for a degree. The program of study may be amended at any time with the mutual consent of the student and their advisor. In preparing a program of study, the student must be aware of the degree and residence requirements established by the department and by the university.

These forms are available from the department secretary and the department webpage. The forms should be typed and signed by the student's committee members and by the department chair.  The original is placed in the student's file in the department office. A copy is made for the major professor who uses it in future course advising. The student is responsible for updating this document annually.

## 4.3   Annual Review

Each year a graduate student progress evaluation is conducted. This is a review of the academic performance of each graduate student. Students are informed whether or not their progress is satisfactory and are expected to remedy any deficiencies noted. The review is used by the department chair in decisions pertaining to the continuation of students in the program. Students not making timely and satisfactory progress toward their intended degree will not be continued in the department. The review is performed by the graduate director or, for students admitted to PhD candidacy, their dissertation director.

The department chair makes the final decision on matters of continuance in the department's degree programs.

## 4.4   Graduation Requirements
While engaged in dissertation research, students must register for the number of hours of dissertation (STA 6980) determined jointly with their major professor (not less than three semester hours) for at least two of the three semesters of the academic year.

In their final semester, students must apply for degree clearance in the first two weeks of the term. Clearance is contingent upon successful completion of your program of study (section 4.2), as filed with the department. Therefore, the program should at all times accurately reflect the coursework taken. The student will be required to account for any discrepancies.

Students planning to continue working towards a PhD degree after earning a master's must request readmission whether or not their attendance will be interrupted. To do this, notify the department secretary of your intention to continue when applying for MS degree clearance. An application for readmission, which is available in the registrar's office, must be completed.

There are many graduation requirements set by the university. Consult the FSU Graduate Bulletin for a comprehensive list.

## 5.   The Student Advisory Committee

The Department of Statistics, through the Student Advisory Committee (SAC), participates in the university-wide program which promotes active involvement of students in academic decision-making. The SAC consists of one representative each from the first and second year classes, two advanced representatives, and two officers.

The main function of the committee is to act as a liaison between faculty and students. By making themselves available for comments from both groups, the committee promotes effective communications and student awareness of department policies. A member of the SAC attends department faculty meetings. Some past inputs from SAC to the faculty have been to request new courses and invite specific guest speakers to department colloquia.

In addition, the SAC sponsors social/recreational  events and enters teams in various intramural programs available on campus.

SAC members are elected each spring term by the graduate students. A representative of the incoming is class chosen at the beginning of the following fall term.

## 6.  Statistical Consulting Center

As a service to the university, the department operates the Statistical Consulting Center (SCC). Department members associated with the SCC offer assistance to faculty and students in the university who require statistical help with their research. Occasional assistance is provided to state agencies or to other community members.

## 7.  Department Colloquia

The department colloquium is a lecture-discussion   series on research and applications in topics of interest to members of the department.  Colloquia are presented by faculty members, graduate students and visitors to the department.

Attendance at colloquium is expected of all faculty and graduate students in the department. Suggestions for colloquium presentations are always welcomed, and should be passed to the faculty though the SAC.

The department has an annual speaker competition for graduate students, the Anna and Yongyuan Li presenation award.  The student who is judged by the faculty of the awards committee to have made the best presentation for the academic year is given the award.