UCF

Big Data Analytics PhD Graduate Program Handbook

Last updated **May 2020**

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Big Data PhD

Together, the [Graduate Student Handbook](#) and your graduate program handbook should serve as your main guide throughout your graduate career. The Graduate Student Handbook includes university information, policies, requirements and guidance for all graduate students. Your program handbook describes the details about graduate study and requirements in your specific program. While both of these handbooks are wonderful resources, know that you are always welcome to talk with faculty and staff in your program and in the Graduate College.

The central activities and missions of a university rest upon the fundamental assumption that all members of the university community conduct themselves in accordance with a strict adherence to academic and scholarly integrity. As a graduate student and member of the university community, you are expected to display the highest standards of academic and personal integrity.
Here are some resources to help you better understand your responsibilities:

- [Academic Honesty](#)
- [Academic Integrity Training](#)- Open to all graduate students at no cost
- [Plagiarism](#)

Introduction

The Big Data Analytics PhD program consists of at least 72 credit hours of course work beyond the Bachelor's degree, of which a minimum of 42 hours of formal course work, exclusive of independent study, and 15 credit hours of dissertation research (STA 7980) are required. The program requires 15 hours of elective courses. Note that all STA elective courses must be taken at 6000 level or above with the addition of STA 5825.

Students in the Big Data Analytics PhD program are expected to complete their degree in no more than seven years. Our full-time students are expected to complete the PhD degree in four years from the Bachelor's degree or in three years for those with a MS degree in Statistics, Data Science track.

Program Requirements

Students need to have the following background and/or courses completed before starting the Big Data Analytics PhD program. These courses are: [MAC 2311C: Calculus with Analytic Geometry I](#), [MAC 2312: Calculus with Analytic Geometry II](#), [MAC 2313: Calculus with Analytic Geometry III](#), [MAS 3105: Matrix and Linear Algebra](#) or [MAS 3106: Linear Algebra](#). In addition, a course or background in [MAA 6306: Real Analysis](#) is welcome and encouraged but not required.

Course Requirements

The primary objective of doctoral study is to educate students to a point of excellence in conducting, disseminating, and applying scholarly research, with the explicit goal of making original, substantive contributions to their degree discipline. The advanced nature of doctoral education requires student participation, debate, evaluation, and discussion of diverse ideas and approaches. Careful analysis, independent research, and greater understanding and application of ideas are also expected.

The doctoral degree program requirements will consist of core and elective courses, seminars, directed and doctoral research, and dissertation research.

Each doctoral program of study will include a minimum of 72 semester hours of graduate credit beyond the baccalaureate degree or a minimum of 42 semester hours of graduate credit beyond the master's degree; these graduate credits must be taken as part of an approved graduate program of study.

All graduate credit in a doctoral program must be at 5000 level or higher.

At least one-half of the credit hours used to meet program requirements must be in 6000-level or 7000-level courses, including the allowed number of research and dissertation hours.

At least 50 percent of the credits offered for the degree are expected to be derived from a single field of concentration (that is, from one department).

Only graduate-level credit with a grade of "B" or higher may be used to satisfy degree requirements.

Independent study (STA 6908) cannot be used towards the doctoral degree, unless instructed by the Graduate Coordinator.

A university-wide minimum of at least 27 hours of formal coursework exclusive of Independent Study (STA 6908), dissertation and research is required for the doctoral programs.

A university-wide minimum of at least 15 hours of dissertation credits is required for the doctoral programs

The dissertation hour requirements may only be satisfied by enrollment in dissertation hours.

Curriculum

The Ph.D. in Big Data Analytics requires 72 hours beyond an earned Bachelor's degree. Required coursework includes 42 credit hours of courses, 15 credit hours of restricted elective coursework, and 15 credit hours of dissertation research. In general, students cannot use Independent Study to substitute for a required or elective course. Students can use independent study, for a maximum of 3 credits, to replace an elective course in case the Graduate Coordinator approves it prior to registering for the independent study. This may happen for courses with low enrollment where the Graduate Coordinator may ask registered students to take the courses as independent study.

All Ph.D. students must have an approved **Plan of Study (POS)** developed by the student and advisor that lists the specific courses to be taken as part of the degree. Students must maintain a minimum GPA of 3.0 in their POS, as well as a "B" (3.0) in all courses completed toward the degree and since admission to the program.

Required Course

(42 credit hours)

STA 5104 - Advanced Computer Processing of Statistical Data 3Credit Hours
STA 5703 - Data Mining Methodology I 3Credit Hours
STA 6106 - Statistical Computing I 3Credit Hours
STA 6236 - Regression Analysis 3Credit Hours
STA 6238 - Logistic Regression 3Credit Hours
STA 6326 - Theoretical Statistics I 3Credit Hours
STA 6327 - Theoretical Statistics II 3Credit Hours
STA 6329 - Statistical Applications of Matrix Algebra 3Credit Hours
STA 6704 - Data Mining Methodology II 3Credit Hours
STA 7722 - Statistical Learning Theory 3Credit Hours
STA 7734 - Statistical Asymptotic Theory in Big Data 3Credit Hours
STA 6714 - Data Preparation 3Credit Hours
CNT 5805 - Network Science 3Credit Hours
COP 5711 - Parallel and Distributed Database Systems 3Credit Hours

Restricted Electives

(15 Credit Hours) - at least 9 credit hours must be STA coursework. With departmental approval,
other courses may be included in the plan of study

STA 5825 – Stochastic Processes and Applied Probability Theory 3Credit Hours
STA 6107 - Statistical Computing II 3Credit Hours
STA 6226 - Sampling Theory and Applications 3Credit Hours
STA 6237 - Nonlinear Regression 3Credit Hours
STA 6246 - Linear Models 3Credit Hours
STA 6346 - Advanced Statistical Inference I 3Credit Hours
STA 6347 - Advanced Statistical Inference II 3Credit Hours
STA 6507 - Nonparametric Statistics 3Credit Hours
STA 6662 - Statistical Methods for Industrial Practice 3Credit Hours
STA 6705 - Data Mining Methodology III 3Credit Hours
STA 6707 - Multivariate Statistical Methods 3Credit Hours
STA 6709 - Spatial Statistics 3Credit Hours
STA 6857 - Applied Time Series Analysis 3Credit Hours
STA 7239 - Dimension Reduction in Regression 3Credit Hours

STA 7348 - Bayesian Modeling and Computation 3Credit Hours
STA 7719 - Survival Analysis 3Credit Hours
STA 7935 - Current Topics in Big Data Analytics 3Credit Hours
CAP 5610 - Machine Learning 3Credit Hours
CAP 6307 - Text Mining I 3Credit Hours
CAP 6315 - Social Media and Network Analysis 3Credit Hours
CAP 6318 - Computational Analysis of Social Complexity 3Credit Hours
CAP 6737 - Interactive Data Visualization 3Credit Hours
COP 5537 - Network Optimization 3Credit Hours
COP 6526 - Parallel and Cloud Computation 3Credit Hours
COP 6616 - Multicore Programming 3Credit Hours
COT 6417 - Algorithms on Strings and Sequences 3Credit Hours
COT 6505 - Computational Methods/Analysis I 3Credit Hours
ECM 6308 - Current Topics in Parallel Processing 3Credit Hours
EEL 5825 - Pattern Recognition and Learning from Big Data 3Credit Hours
EEL 6760 - Data Intensive Computing 3Credit Hours
ESI 5419 - Engineering Applications of Linear, Nonlinear and Integer Programming 3Credit Hours
ESI 6247 - Experimental Design and Taguchi Methods 3Credit Hours
ESI 6358 - Decision Analysis 3Credit Hours
ESI 6418 - Linear Programming and Extensions 3Credit Hours
ESI 6609 - Industrial Engineering Analytics for Healthcare 3Credit Hours
ESI 6891 - IEMS Research Methods 3Credit Hour

Timeline for Completion

All incoming graduate students are required to take the core course sequences starting in the fall. Students with a Bachelor degree have to follow these guidelines. Note that some course sequences may be switched between Fall and Spring. So, students should think more about completing courses per year rather than per semester.

Year 1

Fall	*Spring*
▪ STA 6236: Regression Analysis (3)	▪ STA 6238: Logistic Regression (3)
▪ STA 6326: Theoretical Statistics I (3)	▪ STA 6327: Theoretical Statistics (3)
▪ STA 5104: Advanced Computer Processing of Statistical Data (3)	▪ STA 6714: Data Preparation (3)
Semester 1 Total: 9 credit hours	**Semester 2 Total: 9 credit hours**

Year 2

Fall	*Spring*
▪ STA 5703: Data Mining I (3)	▪ STA 6704: Data Mining II (3)
▪ STA 6106: Stat Computing I (3)	▪ COP 5711: Parallel and Distributed Database Systems (3)
▪ CNT 5805: Network Science (3)	▪ STA 6329: Statistical Applications of Matrix Algebra (3)
Semester 3 Total: 9 credit hours	**Semester 4 Total: 9 credit hours**

PhD Qualifying Exam after year 2

Year 3

Fall	*Spring*
▪ STA 7734: Statistical Asymptotic Theory in Big Data (3)	▪ STA 7722: Statistical Learning Theory (3)
▪ Restricted Electives (3)	▪ Restricted Electives (3)
▪ Restricted Electives (3)	▪ Restricted Electives (3)
Semester 5 Total: 9 credit hours	**Semester 6 Total: 9 credit hours**

PhD Candidacy Exam after year 3

Year 4

Fall	*Spring*
▪ Restricted Electives (3)	▪ STA 7980: Dissertation Research (9)
▪ STA 7980 or 7919: Dissertation Research (6)	
Semester 7 Total: 9 credit hours	**Semester 8 Total: 9 credit hours**

Examination Requirements

Qualifying Examination

Eligibility to continue a doctoral program should be limited to superior students who have demonstrated intellectual ability, high achievement, and adequate preparation for advanced study and research in Big Data Analytics.

The qualifying examination is a written examination that will be administered by the doctoral exam committee at the start of the fall term (end of the summer) once a year. The courses required to prepare for the examination are STA 5703, STA 6704, CNT 5805, STA 6326, STA 6327 and COP 5711. Students must obtain permission from the Graduate Program Coordinator to take the examination. Students normally take this exam just before the start of their third year and are expected to have completed the exam by the start of their fourth year. To be eligible to take the Ph.D. qualifying examination, the student must have a minimum grade point average of 3.0 (out of 4.0) in all the coursework for the Ph.D. The exam may be taken twice. If a student does not pass the qualifying exam after the second try, he/she will be dismissed from the program.

In order to pass the exam, students need to pass all the 4 parts. Students must take all parts of the qualifying exam in their first attempt and must have completed all courses covered by the exam. The composition of the exam along with a list of any materials that students can use is given below:

Part I: STA 6326 Theoretical Statistics I, STA 6327 Theoretical Statistics II
Materials: Course textbook.

Part II: COP 5711 Parallel and Distributed Database Systems, CNT 5805 Network Science
Materials:
COP 5711 - Only pen/pencils are permitted for this exam.
CNT 5805 - Calculators allowed

Part III: STA 5703 Data Mining I, STA 6704 Data Mining II
Materials: You may use a one-page formula sheet.

Part IV: Take home exam
Materials: No restrictions as far as you work independently.
Students must work independently. Academic dishonesty will result in a grade of zero for this exam.

Students who are more than **ten minutes late** to a specific Part will not be allowed to take that Part of the exam and will receive a failing grade for that Part. So, it's your responsibility to be in the classrooms prior to exam start times.

Note that no late reports will be accepted for the take home portion. Also, students are not allowed to have access to their exams after the results are given.

It is strongly recommended that the student select a dissertation adviser by the completion of 18 credit hours of course work, and it is strongly recommended that the student works with the dissertation adviser to form a dissertation committee within two semesters of passing the Qualifying Examination.

Candidacy

This exam takes place prior to admission to Candidacy Status. A student must demonstrate his or her readiness for the PhD program by successfully completing the candidacy examination before admission to full doctoral status and enrollment into dissertation hours. This is permanently filed in the student's permanent records. It is taken near the end of completion of course work and must be passed before being allowed to enroll in doctoral dissertation (STA 7980) hours.

Admission to Candidacy

The candidacy exam is administered by the student's dissertation advisory committee and will be tailored to the student's individual program to propose either a research- or project-based dissertation. The candidacy exam involves a dissertation proposal presented in an open forum, followed by an oral defense conducted by the student's advisory committee. This committee will give a Pass/No Pass grade. In addition to the dissertation proposal, the advisory committee may incorporate other requirements for the exam. The student can attempt candidacy any time after passing the qualifying examination, after the student has begun dissertation research (STA7919, if necessary), but prior to the end of the second year following the qualifying examination. The candidacy examination can be taken no more than two times. If a student does not pass the candidacy exam after the second try, he/she will be removed from the program.

Admission to candidacy will be approved by the program director and the college coordinator and forwarded to the UCF College of Graduate Studies for status change. Only after admission to candidacy may a student register for doctoral dissertation hours (STA 7980). Effective beginning in the fall 2010 term, students must have passed candidacy and have the candidacy and dissertation advisory committee documentation received and processed by the College of Graduate Studies prior to the first day of classes for the term in order to enroll in dissertation hours for that term. Students enrolling in dissertation hours for the first time during the summer must have their paperwork submitted prior to the first day of classes for Summer C, regardless of which summer session they will enroll in.

The following are required to be admitted to candidacy and enroll in dissertation hours.

Completion of all coursework, except for dissertation hours

Successful completion of the qualifying examination

Successful completion of the candidacy examination including a written proposal and
oral defense

The dissertation advisory committee is formed, consisting of approved graduate faculty and graduate faculty scholars

Submittal of an approved program of study

Doctoral students admitted to candidacy are expected to enroll in dissertation hours and to devote full-time effort to conducting their dissertation research and writing the required dissertation document.

Students in doctoral candidacy must continuously enroll in at least three hours of dissertation course work (STA 7980) each semester (including summer) until the dissertation is completed.

Candidacy Examination

The purpose of the Candidacy Examination is for the student to demonstrate a strong foundation of knowledge within the specific discipline, and the ability and preparation to conduct independent scholarly research. The committee may examine a broad range of appropriate capabilities, including theory, bibliography, research methodology, and the evaluation of preliminary research, when appropriate. The examination must have a written component; it also may include an oral defense of a written report or dissertation proposal. All written examination materials will be kept in the student's file in the program.

Dissertation Requirements

- **STA 7980** - Dissertation Research 15 credit hours

  Note that student can register for STA 7980 only after the student passes the candidacy exam. So, student can register for STA 7919 in case the student has not passed the PhD candidacy exam yet.

Department Dissertation Requirements

After passing the qualifying exam, the student must select a dissertation adviser. In consultation with the dissertation adviser, the student should form a dissertation advisory committee. The dissertation adviser will be the chair of the student's dissertation advisory committee. In consultation with the dissertation advisor and with the approval of the chair of the department, each student must secure qualified members of their dissertation committee. This committee will consist of at least four faculty members chosen by the candidate, three of whom must be from the department and one from outside the department or UCF. Graduate faculty members must form the majority of any given committee. A dissertation committee must be formed prior to enrollment in dissertation hours.

The dissertation serves as the culmination of the coursework that comprises this degree. It must make a significant original theoretical, intellectual, practical, and creative or research contribution to the student's area within the discipline.
The dissertation can be either research- or project-based depending on the area of study, committee, and with the approval of the dissertation advisor. The dissertation will be completed through a minimum of 15 hours of dissertation research credit.

Dissertation Requirements

Dissertations are required in all PhD programs. The dissertation consists of an original and substantial research study designed, conducted, and reported by the student with the guidance of the Dissertation Committee. The written dissertation must include a common theme with an introduction and literature review, details of the study, and results and conclusions prepared in accordance with program and university requirements. The dissertation is expected to represent a significant contribution to the discipline. Since this work must be original, it is very important that care is taken in properly citing ideas and quotations of others. Failure to do so is academic dishonesty and subject to termination from the program without receiving the degree. An oral defense of the dissertation is required.

Enrollment in Dissertation Hours

The university requires all doctoral students to take a minimum of 15 credit hours of doctoral dissertation hours; however, specific programs may require more than this minimum. Dissertation research is considered to be a full-time effort, and post-candidacy enrollment in at least three doctoral dissertation (STA 7980) credit hours constitutes full-time graduate status. Doctoral students who have passed candidacy and have begun taking doctoral dissertation hours (STA 7980) must enroll in at least three dissertation hours each semester (including summers, without skipping a semester) and continue doing so until they complete and successfully defend the dissertation. Students wishing to enroll in fewer than 3 credit hours must have approval from their advisor. Students who need to interrupt their dissertation work for extenuating circumstances must submit a Leave of Absence Form to the College of Graduate Studies. Submission and approval of the form must be obtained prior to the first day of classes for the term of non-enrollment.

Dissertation Advisory Committee Membership

Doctoral students must have a Dissertation Advisory Committee prior to advancement to candidacy status. The Committee will consist of a minimum of four members who are approved members of the Graduate Faculty or Graduate Faculty Scholars (see Graduate Faculty). At least three members must be Graduate Faculty, one of whom must serve as the chair of the committee. One member must be from either outside the student's department at UCF (or college, if a college-wide program) or outside the university. The Graduate Program Committee may specify additional advisory committee membership beyond the minimum of four. These additional advisory committee members must also be approved members of the Graduate Faculty or Graduate Faculty Scholars. Graduate Faculty members must form the majority of any given committee.

Committee membership must be approved by the program director and submitted to the College of Graduate Studies. All members must be in fields related to the dissertation topic. The UCF College of Graduate Studies reserves the right to review appointments to a dissertation advisory committee, place

a representative on any dissertation advisory committee, or appoint a co-chair. A student may request a change in membership of the dissertation advisory committee with the approval of the program director and re-submission to the College of Graduate Studies.

All members vote on acceptance or rejection of the dissertation proposal and the final dissertation. The dissertation proposal and final dissertation must be approved by a majority of the committee.

Responsibilities of Members of Doctoral Advisory Committees

All members of the doctoral advisory committee have responsibilities. See the Graduate Faculty and Graduate Faculty Scholars Policy for this information.

Dissertation Preparation

Thesis and Dissertation (ETD) describes university requirements and formatting instructions for dissertations and outlines the steps graduate students must follow in order to submit their dissertations electronically to the UCF College of Graduate Studies. The Thesis and Dissertation Office offers online and face-to-face workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a dissertation. Students who have just passed Candidacy are strongly encouraged to visit the online workshop.

Dissertation students will submit their dissertations electronically. Electronic thesis/dissertation (ETD) submissions will be archived by the UCF library in digital format and will be more widely accessible. In addition, students may use video and audio clips as well as other formats that may be appropriate for their field of study.

All dissertations that use research involving human subjects, including surveys, must obtain approval from an independent board, the Institutional Review Board (IRB), for this prior to starting the research. Graduate students and the faculty that supervise them are required to attend training on IRB policies, so this needs to start well in advance of the research start date. It is imperative that proper procedures are followed when using human subjects in research projects. Information about this process can be obtained from the Office of Research and Commercialization (www.research.ucf.edu). Click on "Compliance" and the *IRB Policy and Procedures Manual* is available. In addition, should the nature of the research or the faculty supervision change since the IRB approval was obtained, then new IRB approval must be sought. Failure to obtain this prior approval could jeopardize receipt of the student's degree.

Students who wish to complete their degree requirements in a given semester must take their oral defense and submit their dissertation to the UCF College of Graduate Studies by the dates shown in the Academic Calendar.

Dissertation Defense
The dissertation defense is an oral presentation and defense of the written dissertation describing the student's research. The advisory committee will evaluate and judge the dissertation defense.

Successful students must demonstrate that they are able to conduct and report original independent research that contributes substantially to the discipline in which they study. The defense is a formal academic requirement and should be accorded respect and dignity, and thus, no refreshments or other distractions should be served during the defense.

The dean of the college or his/her designee will normally attend all dissertation defenses. Dissertations will be approved by a majority vote of the dissertation advisory committee. Further approval is required from the Dean or Dean designee and the UCF College of Graduate Studies before final acceptance of the dissertation in fulfilling degree requirements.

Dissertation Virtual Defense

Graduate programs may elect to offer the option of a virtual *dissertation* defense (student off-campus defense) upon approval of the program coordinator/director, the department, and the college. Programs that choose to offer the option of a virtual defense must develop and ensure procedures for the implementation of the virtual defense process and procedures must be published in the program's handbook. These procedures should address the form and time for the student's request for a virtual defense, the process for seeking approval, the teleconferencing facilities and equipment to be used, the availability of technical support during the defense, alternative plans if needed, and other relevant issues. Use of a web conferencing platform like Lync or Adobe Connect is recommended as is the preparation of participants and testing of the system prior to the defense date. Students must also seek approval for a virtual defense by the time they file the intent to graduate. It is expected that at minimum the dissertation committee chair will be present at the campus location of the public defense. Individual programs may add further restrictions or requirements for students to proceed with virtual defenses.

Review for Original Work

The university requires all students submitting a dissertation as part of their graduate degree requirements to first have their electronic documents submitted through iThenticate for advisement purposes and for review of originality. The dissertation chair is responsible for scheduling this submission to iThenticate and for reviewing the results from iThenticate with the student's advisory committee. The advisory committee uses the results appropriately to assist the student in the preparation of their dissertation.

Before the student may be approved for final submission to the university, the dissertation chair must indicate completion of the Review for Original Work through iThenticate by signing the Dissertation Approval Form.

Dissertation Dissemination

While UCF respects the wishes of students who would like to publish their work and/or apply for patents, it is essential for scholarly research conducted at a university to be available for dissemination. While several options are available for the release of an ETD, it is the goal of the university that all dissertations be available through the UCF Libraries catalog. Students with potential patent concerns are required to discuss the following options with their dissertation adviser and indicate the availability choice on the Thesis and Dissertation Release Option electronic form, which the student submits in the

myUCF Student Center.

For those with no patent or copyright concerns:

- Immediate worldwide dissemination with no restrictions.

For those who have patent issues, dissemination options must be discussed and agreed to with your adviser. Choices are:

- Pending dissemination of the entire work for six months for patent or other proprietary issues, with an additional six months extension available. Once the patent and proprietary issues are resolved, then immediate worldwide dissemination with no restrictions.
- Pending dissemination of the entire work for six months for patent or other proprietary issues, with an additional six months extension available. Once the patent and proprietary issues are resolved, choosing this option allows the student to make the dissertation available to the university community for the period chosen below, and then for it to be distributed via the Web beyond that time.
  - one year
  - three years*
  - five years*

For those who have copyright concerns, dissemination options are a student decision within the guidelines of individual departments that may have requirements for dissemination. If a department has no guidelines for dissemination, then students are free to choose one of the options below. In general, those in the sciences and engineering will choose one year while students in the arts and humanities may choose longer. Choosing this option allows the student to make the dissertation available to the university community for the period chosen below, and then for it to be distributed via the Web beyond that time.

- one year
- three years*
- five years*

Does not require dissertation adviser signature and approval.

Public Access
Students, faculty, staff, and other interested parties are strongly encouraged to attend dissertation final defense sessions. Notices providing date, time, and location of such meetings must be distributed to all academic departments.
These sessions are educational and informative for graduate students and provide an opportunity for colleagues to observe the work of their peers with students. At the discretion of the Chair of the Committee, questions may be invited from the audience. That part of the session involving committee discussion leading to a vote on the acceptance of the work will be closed. Sessions may be recessed briefly to excuse visitors and the candidate before this stage begins.

To summarize, the College of Graduate Studies Thesis and Dissertation page contains information on the university's requirements for dissertation formatting, format review, defenses, final submission, and more. A step-by-step completion guide is also available on Thesis and Dissertation Services Site. All university deadlines are listed in the Academic Calendar. Your program or college may have other earlier deadlines; please check with your program and college staff for additional deadlines.

The following requirements must be met by dissertation students in their final term:
Submit a properly formatted file for initial format review by the format review deadline
Submit the Thesis and Dissertation Release Option form well before the defense
Defend by the defense deadline
Receive format approval (if not granted upon initial review)
Submit signed approval form by final submission deadline
Submit final dissertation document by final submission deadline

Students must format their dissertation according to the standards outlined in Thesis and Dissertation Webcourse. Formatting questions or issues can be submitted to the Format Help page in the Thesis and Dissertation Services site. Format reviews and final submission must be completed in the Thesis and Dissertation Services site. The Dissertation Approval Form is also available in the Thesis and Dissertation Services site.

The College of Graduate Studies offers several thesis and dissertation Workshops each term. Students are highly encouraged to attend these workshops early in the dissertation process to fully understand the above policies and procedures.

The College of Graduate Studies thesis and dissertation office is best reached by email at editor@ucf.edu.

Academic Integrity Training

All students newly admitted to doctoral programs must complete training designed to inculcate an awareness and understanding of the fundamental issues of academic integrity and the responsible conduct of research (RCR) in a manner that is consistent with federal regulations. This required training includes: (1) the online Collaborative Institutional Training Initiative (CITI) "Responsible Conduct of Research" training module in the appropriate disciplinary area; and (2) four face-to-face ethics/RCR workshops coordinated by the College of Graduate Studies and the Office of Research and Commercialization, or an approved alternative training offered as a program requirement for all students in the program. Students in a program that has approved alternative ethics/RCR training must still complete the online CITI Responsible Conduct of Research training in the appropriate disciplinary area.
The workshops and CITI training modules are open to all UCF graduate students and postdoctoral

fellows and associates. For the ethics/RCR workshops, priority is given to doctoral students who are required to complete these workshops prior to advancement to candidacy.

Deadlines:

1. All academic integrity/RCR training requirements must be completed prior to a student's advancement to candidacy.
2. The CITI module should be completed by the end of a student's second major (Fall/Spring) term of enrollment.
3. All academic integrity and RCR training requirements must be completed in a manner that is consistent with federal regulations.

A doctoral student who has not completed the required training in academic integrity and the responsible conduct of research will not be advanced to candidacy.

Workshops:

The College of Graduate Studies and the Office of Research and Commercialization offer a series of workshops to enable students to fulfill the four workshop requirement. Students must take at least two workshops from a set of core workshops which focus on: personal integrity in the classroom; plagiarism; data management (including fabrication, falsification, and confidentiality); authorship and peer review; mentor and trainee responsibilities; collaborative research; and conflicts of interest. Students must complete two additional workshops from among the set of core workshops or a series of additional workshops, which will provide more specialized training such as human subjects, animal welfare; and other areas of ethical concern unique to a discipline or research area.

Programs may develop alternatives for the training workshops that focus on issues of particular relevance to their specific disciplines and fields, or that better accommodate the schedules of their students. Alternative training must be offered as a program requirement for all students in the program. The training content must be specified in the syllabus/syllabi of required formal courses and include the core topics listed above as well as other topics appropriate to the specific discipline. Alternative training content must be submitted for review and approval by the College of Graduate Studies and the Office of Research and Commercialization prior to student attendance.

Further information concerning workshop sessions and registration and how to complete the CITI training module may be found at Academic Integrity Training.

Time Limitation and Continuous Enrollment

A student has seven years from the date of admission to the doctoral program to complete the dissertation and the doctoral degree. No courses used in a program of study can be older than seven years at the time of graduation. Credits that are part of an earned master's degree are exempt from this 7-year expiration, including those earned "along-the-way" in a doctoral program.

Students who anticipate being out for an extended period of three consecutive semesters or longer should apply for a Special Leave of Absence no later than the end of the add/drop period of the third semester of absence. Students who do not maintain continuous enrollment without a Special Leave of Absence (see Continuous Attendance and Special Leave of Absence in the General Graduate Policies) must file for readmission to the university, although seven years is measured from when the student was first admitted to the program.

Readmission

If doctoral students do not maintain continuous enrollment (see Continuous Attendance in the General Graduate Policies), they must file for readmission to the university. To file for readmission, the student must complete a new online Application. For more information about readmission, refer to the Admissions in this catalog.

Readmission decisions are individually made, based on such factors as space in the program, reasons for the break in graduate education, progress in the degree program, among others. Readmission is not guaranteed.

Conferral of Master's Degrees for Students in Doctoral Degree Programs

A student making satisfactory progress in a doctoral program may be eligible to be awarded a master's degree in the same discipline. Policies concerning these degrees can be found under Master's Program Policies.

Transfer of Credit

Types of Transfer Credit

Three different types of credit may be brought into a program of study for course work taken outside of UCF or prior to enrolling in the program for which the degree is sought.

1. **External transfer credits:** course credits completed at a regionally accredited institution (excluding UCF) or recognized international institution.

   External transfer credits are eligible for transfer only if they meet the following criteria:
   - Only graduate-level courses may be accepted as transfer credits.
   - Only courses with a grade of "B-" or higher are allowed to be transferred into a program of study (not petitionable).
   - Only hours that are no more than seven years old at the time the degree is conferred may be transferred, unless part of an earned graduate degree.
   - Only formal course work hours, but not thesis or research hours, may be used as transfer credits (not petitionable).

External transfer credits are limited to up to 9 credit hours for students who do not have a completed graduate degree or for students in doctoral programs that require a master's degree for admission.

For the Department of Statistics & Data Science, the policy for transferring a course is based on 1 to 1. This means 1 course from another institution can be used for 1 course from UCF. All credits transfer will go through proper course evaluations. In general, students cannot transfer required courses except under the discretion of the Graduate Committee. Also, students cannot use independent study/directed research to substitute or replace a required course. Similarly, students cannot use independent study/directed research to substitute or replace an elective course unless prior approval from the Graduate Coordinator.

To transfer a course from Statistics, student will submit to the Graduate coordinator the syllabus and if possible course schedule for the course. The syllabus has to be the one used from the semester and year the student took the course with the original institution.

To transfer a course from Computer Science, Engineering, Math, etc…, the student should contact himself/herself the instructor in charge of this course from Computer Science, Engineering, Math, etc…, and the instructor from that department should send to the Graduate Coordinator of the Department of Statistics & Data Science by private email their decisions about the courses equivalency.

2. Internal transfer credits: graduate-level course credits completed
   a. at UCF prior to enrolling in the program for which the degree is sought, including those taken in undergraduate status at UCF as part of a Senior Scholar or accelerated program; or
   b. as a Traveling Scholar (see Traveling Scholars in the General Graduate Policies for more information).

   Internal credits are eligible for transfer only if they meet the following criteria:
   - Only graduate-level or higher courses may be accepted as transfer credits.
   - Only courses with a grade of "B-" or higher are allowed to be transferred into a program of study (not petitionable).
   - Only hours that are no more than seven years old at the time the degree is conferred may be transferred, unless part of an earned graduate degree.

   (Note: Internal thesis or research hours may be used as transfer credits, but may not be used to satisfy formal course work requirements.)

   Graduate degree programs are permitted to accept as internal transfer credits up to nine hours of graduate-level course work taken by a student while in undergraduate status at UCF. More than nine hours may be accepted if part of a formally approved accelerated program.
   -

3. Waived credits: 30 credit hours in a program of study that are waived on the basis of an earned master's degree, not based on individual courses.

   For students in doctoral programs that do not require a master's degree for admission, students with an earned master's degree may have 30 credit hours waived if the following criteria are met:
   - the earned degree is from a regionally accredited institution or recognized foreign institution;
   - the master's degree was earned in the same or a closely related area of study

Transfer Credit Limits

In no case may the sum of all transfer and waived credits exceed 50% of the total degree requirements of any doctoral degree.

The acceptance of transfer or waived credits in a program of study must be approved by the program; graduate programs may stipulate additional constraints beyond those included in the university transfer policy.

All transfer and waived credits to be used toward a doctoral degree should be finalized by the end of the third major (fall/spring) term of program enrollment (based on full-time enrollment), and must be finalized prior to the change to candidacy status.

The thesis or dissertation credit requirements of a program may not be satisfied by waived or transfer credits.

Students may be required to obtain a Joseph Silny evaluation to obtain transfer or waived credits from recognized international institutions.

For students who do not have a completed graduate degree, the total number of transfer credits are limited to up to 15 credit hours, or up to all of the hours taken to fulfill an earned UCF graduate certificate.

For students in doctoral programs that require a master's degree for admission, the total number of transfer credits are limited to up to 15 credit hours, or up to all of the hours taken to fulfill an earned UCF graduate certificate. Credits from the required, earned master's degree may not be used to satisfy doctoral program requirements.

For students in doctoral programs that do not require a master's degree for admission, students with an earned master's degree from a regionally accredited institution or recognized foreign institution may:

- waive 30 credit hours of requirements and credits in a program of study; or
- transfer up to 30 credit hours from any earned master's degree in the same or a closely related area of study, provided a course-by-course review is performed.

Students who transfer up to 30 credit hours from any earned master's degree or who have 30 credit hours waived from an earned master's degree may also transfer up to 9 additional graduate credits,

provided the sum of all transfer and waived credits does not exceed 50% of the total degree requirements.

Summary Table of Transfer Credit Limits

Student Situation	Specific Requirements	General Requirements
Students without an earned master's degree; students in doctoral programs that require a master's degree for admission		
External credits	≤ 9 SCH	
Graduate-level credits while in UCF undergraduate status	≤ 9 SCH	Sum may not exceed 15 SCH*
Other internal credits	≤ 15 SCH	
Students with an earned master's degree in doctoral programs that do not require a master's degree for admission		
Waived credits from earned degree in the same or related discipline (internal or external)	30 SCH	
Transfer credits from earned degree in the same or related discipline (internal or external)	≤ 30 SCH	Sum may not exceed 50% of program requirements
Other external credits	≤ 9 SCH	
Graduate-level credits while in UCF undergraduate status	≤ 9 SCH	
Other internal transfer credits	≤ 15 SCH	

*__Exceptions__:

- Up to all of the hours taken to fulfill an earned UCF graduate certificate.

Professional Conduct

Students are expected to adhere to the rules and regulations as stipulated by the University of Central Florida (UCF) and the Department of Statistics & Data Science (DSDS) Program handbook. Professionalism encompasses behaviors and qualities that are expected of graduate students in both the academic setting and in the professional world. University of Central Florida PhD big Data Analytics degrees begin at the time of program application; therefore, professional conduct is assessed from that point forward.

Attendance, timeliness, and attire are all reflections of professionalism. In the assessment of professionalism, instructors and program administrators will consider each student's conduct; the

quality of interactions; tone of oral and written communication; language; meaningful engagement in all aspects of the program; and substantive contribution to class discussions. Students who are in violation of these behaviors will be counseled and reminded of UCF/DSDS expectations. In such events, the faculty or program administrators may conclude that the student is not able or willing to demonstrate an acceptable standard of courtesy and professionalism. Repeated disregard or violation of these behaviors will lead to dismissal from the program. Some of the criteria by which a student's professional demeanor is measured are below.

- Communication: All communications between a graduate student and the department should start and go through the Graduate Coordinator. Only the Graduate Coordinator can evaluate and grant a request from a graduate student to move forward. Also, it is prohibited for a graduate student to cancel a scheduled activity (lecture, office hour, …) without the approval of the Graduate Coordinator.
- Civility: Students are expected to behave in a respectful and courteous manner to instructors, fellow students, guest speakers, college and university administrators, DSDS staff, and other UCF Staff. Examples of respectful behavior include but are not limited to modulated tone of voice; professional language that avoids inappropriate, vulgar, or foul expressions; maintaining control of emotions and avoiding threatening or bullying behaviors; respect for others' personal space; respect for DSDS and UCF property; refraining from distracting and disruptive behaviors while on campus (DSDS or other UCF campuses), in hallways and in classrooms; and a generally civil demeanor.

- Attendance: It is required for students to attend each lecture and comply with the instructor's attendance policy as stated in the course syllabus.

- Timeliness: Students are expected to regularly arrive in class on time and to comply with each instructor's tardiness policy as stated in the course syllabus.

- Use of Technology: The use of computers, cell phones, or electronic devices during class that are unrelated to course activities or not permitted by instructors (i.e., web searches, IMs, etc.) is considered unprofessional.

- Use of Electronic Media: As per Florida Law (§ 934.03) it is illegal to audio or video record any interaction with another individual without their explicit consent. This includes lectures, meetings with instructors, meetings with fellow students, or any situation involving DSDS staff or UCF personnel.

- Professional Attire: Refers to a minimum of business casual that may include pants, khakis, dress shirts, skirts, dresses, and jeans free of rips/tears/fraying that are neat and clean. Note that clothes that are revealing (plunging necklines, tank tops, open midriffs, short skirts/shorts, sheer fabrics); offensive T-shirts; sweatpants, leggings, workout clothes; thongs/flip-flops/Croc-like sandals; and overpowering perfumes/colognes can be distracting or annoying to others.

- Guest Speakers / Presentations: The DSDS often invites guest speakers from UCF, other universities, or local businesses. Students in the program must demonstrate professional conduct, respect, and appreciation for these professionals' donation of their time to enrich students' educational experiences. Students are expected to arrive to the talk on time and be attentive as a sign of appreciation for their time. Professional business attire is required when guest speakers are present.

Dismissal Policy and Process

A student may be dismissed if any of the following occur:

The following may be grounds for dismissal from the DSDS programs.
- Receiving a "D" or "F" grade in a course listed as a part of the program's curriculum. The student will be summarily dismissed from the program at that time.
- Failure to achieve ≥3.0 GPA after 9 credit hours of Academic Probation.
- Receiving more than 6 credit hours of "C" grades. Exceeding this limit is reason for dismissal from the program.
- Students on Restricted Admission due to earning <70% on admission modules that do not achieve a grade of B or higher in all courses in the initial semester will be dismissed.
- Cheating: Which includes plagiarizing of materials from previously published sources or previously submitted course assignments. Students will not discuss the content of written or oral examinations until cleared to do so by the course instructor. See Golden Rule, UCF's Student Handbook- Rules of Conduct.
- Unprofessional behavior: Behavior that is inconsistent with the aforementioned expected professionalism or failure to correct unprofessional behavior as defined by the DSDS handbook is grounds for dismissal from the Program. This includes failure to attend classes or excessive unexcused absences, or repeated lateness.

Annual Review
Information projected to be entered in 2019-2020.

Graduate Research

UCF has three fundamental responsibilities with regard to graduate student research. They are to (1) support an academic environment that stimulates the spirit of inquiry, (2) develop the intellectual property stemming from research, and (3) disseminate the intellectual property to the general public. Students are responsible for being informed of rules, regulations and policies pertaining to research. Below are some general policies and resources.
Research Policies and Ethics Information: UCF's Office of Research & Commercialization ensures the

UCF community complies with local, state and federal regulations that relate to research. For polices including required Institutional Review Board (IRB) approval when conducting research involving human subjects (e.g. surveys), animal research, conflict of interest and general responsible conduct of research, please see their website: research.ucf.edu/> Compliance.

UCF's Patent and Invention Policy: In most cases, UCF owns the intellectual property developed using university resources. The graduate student as inventor will according to this policy share in the proceeds of the invention. Please see the current UCF Graduate Catalog for details:ucf.catalog.acalog.com/index.php?catoid=4> Policies > General Graduate Policies.

Graduate Student Associations

The Graduate Student Association (GSA) is UCF's graduate organization committed to enrich graduate students' personal, educational and professional experience. To learn more or get involved, please visit facebook.com/groups/UCFgsa/. For individual department or graduate program organizations, please see program advisor.

Professional Development

Occasionally there are opportunities for summer work for students in the Data Mining track. Interested students should contact the Director of this program.

Travel Support

The College of Graduate Studies offers a Graduate Presentation Fellowship that provides funding for master's, specialist, and doctoral students to deliver a research paper or comparable creative activity at a profession meeting. Students must be the primary author and presenter. For additional information visit Graduate Presentation Fellowship. Another option is Graduate Students Travel Funding which is available to pay transportation expenses for graduate students who are delivering a research paper or comparable creative activity at a professional meeting. Contact the Student Government Association at 407-823-5648 for more information.

Teaching and Learning

The Faculty Center for Teaching and Learning (FCTL) promotes excellence in all levels of teaching at the University of Central Florida. They offer several programs for the professional development of Graduate Teaching Assistants at UCF.

Preparing Tomorrow's Faculty Program

This certificate program (12-weeks) consists of group and individualized instruction by Faculty Center staff and experienced UCF professors. Textbooks and materials are provided. International students are provided the same training as well as information regarding language immersion and tricks and cultural awareness as a way of knowing what to expect from American students.

For more information, visit the UCF Faculty Center for Teaching and Learning's website at fctl.ucf.edu/> Events > GTA Programs.

GTA Training (mandatory for employment as a GTA)

This training provides information and resources for students who will be GTAs. The training covers a variety of topics, including course development, learning theories, lecturing, and academic freedom. For details on the required GTA training, visit GTA Training Requirements.

Pathways to Success Workshops

Coordinated by the College of Graduate Studies, the Pathways to Success program offers free development opportunities for graduate students including workshops in Academic Integrity, Graduate Grantsmanship, Graduate Teaching, Personal Development, Professional Development, and Research. For more information and how to register, please visit graduate.ucf.edu/pathways-to-success/.

Graduate Research Forum

Sponsored by the College of Graduate Studies, the Research Forum is an opportunity for students to showcase their research and creative projects and to receive valuable feedback from faculty judges. Awards for best poster and best oral presentation in each category will be given and all participants will receive recognition. For more information, contact researchweek@ucf.edu. For grant-proposal writing resources: uwc.cah.ucf.edu/.

Discipline Societies

American Statistical Association (ASA)
The American Statistical Association is the world's largest community of statisticians. The ASA supports excellence in the development, application, and dissemination of statistical science through meetings, publications, membership services, education, accreditation, and advocacy.

Institute of Mathematical Statistics (IMS)
The IMS is an international professional and scholarly society devoted to the development, dissemination, and application of statistics and probability.

Royal Statistical Society (RSS)
The Royal Statistical Society (RSS) is the UK's only professional and learned society devoted to the interests of statistics and statisticians. It is also one of the most influential and prestigious statistical societies in the world.

Mathematical Association of America (MAA)
There is an organization for people who love the mathematical sciences. A community that values discussion and exposition, for meeting colleagues and building knowledge together. An organization with roots in the nineteenth century and a powerful role in the twenty-first. It's the Mathematical Association of America.

International Association for Statistical Education
The International Association for Statistical Education, seeks to promote, support and improve statistical education at all levels everywhere around the world. It is the international umbrella organization for statistics education.

Job Search

Career Services and Experiential Learning career.ucf.edu/
Graduate career development issues are unique and include evaluating academic and nonacademic career choices, discussing graduate school effect on career choices, as well as learning, evaluating, and refining networking and interviewing skills. Whatever your needs, the offices of Career Services and Experiential Learning offer services and resources to aid in the career exploration and job search of Master and Doctoral students in every academic discipline.
For a listing of job links specific to the statistics discipline visit the Statistics program Job Opportunities webpage.
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Forms

- College of Graduate Studies Forms and References

A complete listing of general forms and references for graduate students, with direct links, may be found here.

- Graduate Petition Form

When unusual situations arise, petitions for exceptions to policy may be requested by the student. Depending on the type of appeal, the student should contact his/her program adviser to begin the petition process.

- Traveling Scholar Form

If a student would like to take advantage of special resources available on another campus but not available on the home campus; for example, special course offerings, research opportunities, unique laboratories and library collections, this form must be completed and approved.

Useful Links

- Big Data Analytics PhD
- College of Sciences
- College of Graduate Studies
- Academic Calendar

- Bookstore
- Campus Map
- Computer Labs
- Counseling Center
- Financial Assistance

- [Golden Rule Student Handbook](#)
- [Graduate Catalog](#)
- [Graduate Student Association](#)
- [Graduate Student Center](#)
- [Housing and Residence Life](#)
- [Housing, off campus](#)
- [Knights Email](#)
- [Learning Online](#)
- [Library](#)
- [NID Help](#)
- [Pathways to Success](#)
- [Recreation and Wellness Center](#)
- [Register for Classes](#)
- [Shuttles Parking Services](#)
- [Statistical Computing Program](#)
- [Student Health Services](#)
- [Student Life](#)
- [Thesis and Dissertation(ETD)](#)
- [UCF Global](#)
- [UCFIT](#)
- [University WritingCenter](#)

Grad Faculty

Asterisk = has previous committee experience, which qualifies the person to serve as chair, co-chair or vice chair.

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