

DEPARTMENT OF STATISTICS,
ACTUARIAL & DATA SCIENCES

2023-2024

GRADUATE HANDBOOK



CENTRAL MICHIGAN UNIVERSITY

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Part I: Graduate Degree Information

Guidelines and Policies*

If you have any questions or need further information, contact the Department of Statistics, Actuarial and Data Sciences, the Graduate Coordinator, or the Department Chair:

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* Any exceptions to the guidelines and policies in Part I of this graduate handbook may be granted by the Graduate Committee of the Department of Statistics, Actuarial and Data Sciences.

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Introduction

The Department of Statistics, Actuarial and Data Sciences offers the following graduate programs:

- Ph.D. in Statistics and Analytics (Ph.D.): 45 hours (after Masters) - 75 hours (after Bachelors)
- M.S. in Applied Statistics and Analytics (M.S.): 30 - 33 hours
- Graduate Certificate in Data Mining (D.M.): 15 - 18 hours
- Graduate Certificate in Actuarial Science (A.S.): 15 - 16 hours
- Accelerated M.S. in Applied Statistics and Analytics

The [Ph.D. in Statistics and Analytics](#) is designed to prepare students for a career in research and teaching at the university level or in equivalent positions in non-academic environments. The program will provide students with comprehensive training in many areas including statistical theory, data analytics, computing, and application of statistical methods to problems in a wide range of fields. For students who are interested in teaching at universities, the program has a unique component of a teaching internship for one semester. For students who are interested in industrial jobs, the program has a component of professional internship to provide students with work experience in a non-academic environment.

The [Master of Science in Applied Statistics and Analytics](#) is a M.S. program in data science. It aims at preparing students with a broad and in-depth background for positions as data scientists and applied statisticians.

The [Graduate Certificate in Data Mining](#) is an one-year program designed at preparing students with diverse backgrounds to gain additional analytical skills for jobs in their respective disciplines.

The [Graduate Certificate in Actuarial Science](#) is an one-year program designed at preparing students to pass the P and FM Actuarial Exams.

The [Accelerated M.S. in Applied Statistics and Analytics](#) program provides the opportunity for undergraduate students to begin graduate coursework during their senior year so that they will be able to complete their bachelor's and master's degrees in five years.

The department has faculty with active research strengths in various areas that include, but are not limited to, actuarial and risk analysis, Bayesian techniques and applications, data mining and applications, distributions and applications, measurement errors, spatial data analysis and statistical modeling.

Classes are small, allowing students to receive individual attention. An active colloquium program draws speakers with varied research interests from a wide range of locales. Graduate student seminars give students the opportunity to explore topics that extend beyond the required coursework. Research groups have strong links with science and engineering departments within Central Michigan University, other universities, and industry. The [Statistical Consulting Center](#) gives students opportunities to analyze data of applied research projects from many different disciplines at CMU and/or external agencies.

Computing facilities within Pearce Hall, where the department is located, include teaching laboratories in Pearce 403 and Pearce 101.

Being a Graduate Student

The primary activity of graduate student life is the role of being a student. The pursuit of a graduate degree requires dedication to the ideal that learning is a life-long endeavor; a graduate student is expected to be uncommonly committed to academic scholarship.

Many of our graduate students are supported as Graduate Assistants (GAs). Most GAs teach as Graduate Teaching Assistants and they work closely with undergraduate students. Teaching duties occupy a significant amount of time and energy. Duties related to this work include preparing lessons, teaching classes, holding office hours, responding to student phone calls and/or e-mails, grading, and reflecting on teaching. The experience of teaching is particularly important for students in the Ph.D. program as the Ph.D. program is designed to prepare graduate students to acquire positions in academia, primarily at teaching institutions. It is the balance of scholarship and teaching that can prove to be a challenge to many beginning teaching assistants.

Besides academic work and teaching/research duties, the life of being a graduate student should also include social and networking activities at personal and professional levels. The Statistics, Actuarial and Data Sciences departmental student organizations include the Gamma Iota Sigma (GIS) chapter of the national scholastic insurance fraternity and the Statistics and Data Science Club.

Academic Integrity

Academic integrity is essential to your development as a scholar. The University's policy on Academic Integrity can be found here: <https://www.cmich.edu/offices-departments/office-of-student-conduct/university-policies>

Performing your academic duties in accordance with this policy is always expected. It is essential that any work you submit for academic credit meet the high professional standards expected of all students. Violations of this policy will be taken very seriously. Please review this policy and familiarize yourself with these expectations.

The Graduate Student Activities Online Monitoring Systems

Starting from the first semester of your graduate student life, your most important duty is to study and have a successful academic performance. The department provides a variety of administrative assistance tools to help you succeed: The STAD Department Academic Advising Worksheet and Degree Progress, an online monitoring database to guide your academic progress.

- **Degree Progress on the CMU website.**
To access Degree Progress, you will first have to login on the [CMU website](#) using your CMU ID and password. Click on the "My Account" link. Degree Progress is located under the "Academics" heading. Degree Progress is a guide to achieve your academic goals. It describes your degree requirements and maps your coursework to graduation.
- **The STAD Department Academic Advising Worksheet.**
The STAD Academic Advising Worksheet is available in Appendix D of this Handbook. It can also be downloaded from the [Department of Statistics, Actuarial and Data Sciences webpage](#). Newly admitted graduate students must complete two-years of academic planning during their first semester at CMU. Returning students must update their study plans each year with at least one-year of academic planning. The student must consult with their academic advisor when

completing the advising worksheet and have their STAD Academic Advising Worksheet signed by the advisor.

To be considered for renewal of STAD financial support, a graduate student must submit their completed and signed Advising Worksheet in early spring semester to the STAD Executive Secretary, Ms. Shari Jackson at jacks1se@cmich.edu.

The Role of the Academic Advisor

When a graduate student is admitted to a program, they are assigned an academic advisor. The academic advisor will be available to help throughout your program of study.

The responsibilities of the academic advisor include:

- Provide advising on course work planning throughout the student's academic program. Each graduate student must submit a two-year plan of study completed in consultation with and approved by his or her advisor every fall semester. An advising worksheet is attached in Appendix D and on [this STAD Department webpage](#). This Worksheet documents each student's academic course work and performance. At the beginning of every fall, each student will update the Worksheet and meet with the advisor to approve the Worksheet.
- For Ph.D. students, once a student has successfully completed the required qualifying exams and has chosen a dissertation advisor, the academic advisor will be changed to their dissertation advisor. There is no change of advisor for students who are not in the Ph.D. program.
- Various requests made by students will also need the advisor's approval, including:
 - Requests for an independent study course that is used to substitute for a regular course. (See the policy of Independent Study section for details).
 - Providing advising if a student is on an academic probation.

Transferring from M.S. to Ph.D.

There is no direct transfer from M.S. to Ph.D. in the Department of Statistics, Actuarial and Data Sciences. If a student in the M.S. program is interested in the Ph.D. program, they are required to go through the same admission and financial support application process as students from external institutions. **The student must reapply and compete with new applicants for funding for the following academic year.**

The student should have completed at least two semesters in the M.S. program prior to considering the option of applying for admission to the Ph.D. program. A decision on which courses from the M.S. can be counted towards the Ph.D. will be made by the student's advisor in consultation with the Graduate Coordinator. The number of credit hours that are transferred does not affect the total number of credit hours needed to earn a Ph.D. degree.

Transferring from Ph.D. to M.S.

In cases when a student decides to transfer from the Ph.D. program to the M.S. in Applied Statistics and Analytics, the student needs to inform their academic advisor and the Graduate Coordinator and take the following steps to complete the transfer:

- The student must apply to the M.S. via the [CMU application webpage](#). Students will NOT have to submit any documents other than the application.
- A staff member in Graduate Student Services will send a new evaluation form to the Graduate Coordinator/Program Director to approve the transfer from Ph.D. to M.S. Once this evaluation

has been approved, the student will be withdrawn from the Ph.D. program and admitted to the M.S. program and a new letter of admission will be sent to the student.

Reclassification from Regular Admission with Stipulations to Regular Admission

From time to time, some students may be offered Regular Admission with Stipulations. These students are required to meet specific criteria as detailed in their admission letter to be considered for Regular Admission. The steps to reclassification are:

- The student must register for courses which meet the criteria outlined in the admission letter in coordination with their academic advisor.
- Registration support will be required until any or all stipulations have been satisfied. Students may work with the department or contact the Registrar's Office for registration assistance during normal business hours at (989)774-3261.
- Progress toward stipulations will be monitored in a coordinated effort between the Department of Statistics, Actuarial and Data Sciences and the admissions processing office.
- The student will receive communication by e-mail if or when all stipulations have been met at which time registration support will no longer be mandated.
- Note: domestic students with Regular Admission with Stipulations may still be eligible to receive Title IV (Federal) financial aid. For more information, visit the [Office of Scholarships and Financial Aid](#).

To clarify step #3 as an internal note, we expect that the admissions processing staff will be able to monitor and update most students' statuses at the conclusion of each semester. When there are stipulations that we have questions about or when a student appeals, the admissions processing staff will work with the departments before releasing the holds which prevent students with unmet stipulations to register for classes.

RCR Training

Graduate students in the master's program must complete Responsible Conduct of Research (RCR) training by the **end of their third semester** in the program. Graduate students in Ph.D. program must complete RCR training **no later than one semester after completing all the Ph.D. qualifying exams**. Students will be ineligible to register for thesis, dissertation, or Plan B credits until they have completed their RCR training. In addition, students awarded Research Assistantships must complete the RCR training before the start of their assistantships.

RCR training is through the [Citi Program website](#). The procedure for the RCR Training is given in Appendix A. Any first-time user must register and choose an ID and password. Upon completion, print the confirmation form and bring it to the STAD Department for recording.

The Role of the Research Advisor

A research advisor is a graduate faculty member selected by a graduate student based on their academic area of interest. You should select a research advisor as soon as you decide on your area of research interest. Your research advisor will guide you throughout the entire process of Plan B or dissertation research and writing.

For the Plan B Project

- Your research advisor advises you and oversees the completion of the paper.

For the Dissertation

- Your research advisor helps you to form a dissertation committee.
- Your research advisor chairs the dissertation committee.
- In consultation with your advisor, the student schedules the final oral examination in which the student defends the dissertation.
- Your research advisor advises you and oversees the completion of final revisions to the dissertation.
- Your dissertation advisor will become your academic advisor. It is your responsibility to inform the department of the change of the academic advisor once you have chosen the research advisor.

The Role of the Dissertation Committee

In consultation with your research advisor, you will form a dissertation committee. The approval of each committee member on both the [prospectus](#) and the [dissertation](#) is required.

- The committee may make suggestions for revising the prospectus.
- The committee may make suggestions for revising the dissertation.
- The committee conducts the final oral examination.
- The committee determines whether the student passes the oral examination.

The committee members should receive a copy of the dissertation before the date of the final oral examination. Adequate time (suggested amount of time is at least two weeks) should be given to committee members for reading the dissertation.

Guidelines for Plan B Project for the M.S. in Applied Statistics and Analytics

This section describes the Plan B Project option for the M.S. program in Applied Statistics and Analytics. The Plan B Project option requires three credits hours as described below:

- Students must complete a Plan B Project under the direction of a graduate faculty member. For the Plan B Project, students must enroll in STA 698.

Procedure for registering for a Plan B Project

After the student has selected their Plan B Project supervisor and topic, the student should register for STA 698 for the term in which the student plans to complete the project.

Time Limit

The Plan B Project should be completed during the semester for which the student is enrolled in STA 698. A presentation of the Plan B project results should be given during the graduate student seminar.

Guidelines

The purpose of the Plan B Project is to allow the student an opportunity to go beyond the normally expected coursework by presenting significant evidence of scholarship and/or creative activity in one of the following areas:

- Actuarial Science
- Probability
- Statistics
- Other elective topics

The topic will usually involve extensions or applications of material learned in class. The topic does not necessarily have to lead to new results and may be expository in nature, but it should require a significant amount of work on the part of the student. Students are expected to spend at least three hours per week working on the project during the semester they are enrolled in STA 698.

Appropriate topics will vary depending on the subject matter area, but some possibilities include:

- A solution of a suitable problem, perhaps from a journal
- A computer simulation design
- An investigation of a topic in statistics education
- An analysis of a “real world” problem
- An exposition of a theory or a collection of results

Completion of Plan B Project

Once a student completes the requirements of their Plan B Project, their Plan B supervisor will approve the project on the Degree Progress system.

Ph.D. Qualifying Examination Policy

In the Ph.D. qualifying examinations, students are expected to demonstrate a broad knowledge of the topic, be able to integrate statistical concepts and explain them at an appropriate level. Qualifying Examinations will be offered in the following subjects, based on the material in the courses listed.

- Applied Statistics (STA 590, 682)
- Theoretical Statistics (STA 584, 684)

Each doctoral student must pass both examinations.

Timeline for taking/passing qualifying exams

Examinations will be offered twice a year. The August Exam period will take place prior to the start of classes in the Fall Semester (in August or September depending on the Academic Calendar) and the January Exam period will take place just prior to the start of classes for the Spring Semester (in January).

The student will be asked to sign up for one or more examinations by email by early April for the August Exam period and by late October for the January Exam period. The Graduate Committee will announce the examination committee within two weeks after the sign-up deadline.

Students are strongly encouraged to take the examinations as soon as possible.

- Full-time students entering with a bachelor’s degree must pass both examinations by the end of their seventh semester counting from the semester they enter the Ph.D. program. If a student takes a leave of absence, then those semesters do not count towards the seven semesters.
- Full-time students entering with a master’s degree must pass both examinations by the end of their fifth semester counting from the semester they enter the Ph.D. program. If a student takes a leave of absence, then those semesters do not count towards the five semesters.
- Part-time students may request additional time from the department.
- A maximum of **two attempts** in each exam are allowed. A second failure in one subject eliminates a student from the Ph.D. Program.

The Qualifying Exam Timeline is summarized in the following tables:

For students entering the Ph.D. Program with a bachelor's degree	
If your first regular semester was:	Must pass both two at the end of:
Fall 2019	Fall 2022
Spring 2020	Spring 2023
Fall 2020	Fall 2023
Spring 2021	Spring 2024
Fall 2021	Fall 2024
Spring 2022	Spring 2025
Fall 2022	Fall 2025
Spring 2023	Spring 2026
Fall 2023	Fall 2026
Spring 2024	Spring 2027
Fall 2024	Fall 2027
Spring 2025	Spring 2028

For students entering the Ph.D. Program with a master's degree	
If your first regular semester was:	Must pass both two at the end of:
Fall 2020	Fall 2022
Spring 2021	Spring 2023
Fall 2021	Fall 2023
Spring 2022	Spring 2024
Fall 2022	Fall 2024
Spring 2023	Spring 2025
Fall 2023	Fall 2025
Spring 2024	Spring 2026
Fall 2024	Fall 2026
Spring 2025	Spring 2027
Fall 2025	Fall 2027
Spring 2026	Spring 2028

Formula: Any student entering the program with bachelor's degree in **semester year** must pass both exams in **semester year + 3**. Any student entering with master's degree must pass both exams in **semester year + 2**. If U with bachelor's degree enters in **fall 2020**, U must pass both exams in **fall 2020 + 3 = 2023**. If G with master's degree enters in **fall 2020**, G must pass both exams in **fall 2020 + 2 = 2022**.

Ph.D. Qualifying Exam Process

- A qualifying exam committee shall consist of three members who are graduate faculty members in the department.
- The Graduate Coordinator selects the examination committee members and the Chair. Two of the three members will prepare the questions for the qualifying exam. The three members shall review and agree on the exam questions. The Chair of the committee is responsible for preparing the final exam paper. The Chair is responsible for finding a proctor (or proctors) for the exam.
- The exam proctor is responsible for getting the question papers from the Chair of the committee and administering the exam. After the completion of the exam, the proctor will

bring the exam papers to the Department Office to make three copies of each student's answer paper with no student's identifying information. A unique number will identify each paper. The original exam papers will be secured in the Department Office.

- The three examination committee members will grade each student's paper. After the grading, the three faculty members will discuss their grades and reach a consensus on each student's paper. The committee's grade of pass or fail for each student should be forwarded to the Graduate Committee for its final decision of pass or fail.
- After the Graduate Committee makes the final decision, the Graduate Coordinator will contact the Department Chair to identify the student's name on each paper.
- The Graduate Coordinator will communicate the results to the students in writing within three weeks of the exam.

The examination papers from the last four qualifying exams will be made available to serve as sample examination questions for students. These sample exam papers will be posted on the department web page [Qualifying Exam Information](#).

Guidelines for Appealing

- Students will be required to pass both parts of each qualifying examination offered by the department.
- Students who do not meet the exam deadlines must appeal to the Graduate Committee in order to remain in the Ph.D. program. The appeal must include a timeline for completion of all remaining exams. A letter of support from a faculty member is required for those students who do not meet the seven (or five) semester deadline and is recommended for all appeals. Students who exceed the timeline determined through the appeal process are automatically eliminated from the Ph.D. program.
- In the case of a student who fails to satisfy a qualifying exam requirement during the August exam period and the Graduate Committee rejects the appeal in fall semester, the student's GA support (if supported) will be terminated at the end of the fall semester. The student may stay as a regular student without support until the end of the spring semester and will be eliminated from the Ph.D. program at the end of the spring semester. In the case of a student who fails to satisfy a qualifying exam requirement during the January exam period and the Graduate Committee rejects the appeal in spring semester, the student will be eliminated from the Ph.D. program at the end of spring semester.
- If a student is unable to take his/her qualifying examination at the scheduled time due to serious illness or emergency, the student must contact the Graduate Coordinator prior to the examination. The Graduate Coordinator will decide based on the evidence whether to make alternate arrangements. If the Graduate Coordinator is not available, the Department Chair should be contacted.
- If a student fails a qualifying exam and wishes to appeal the result to the Graduate Committee, the appeal letter must be received by the Graduate Coordinator within three weeks of the exam results being sent to the student. A student has the option of not taking the scheduled exam due to unforeseen circumstances (sickness or other events with appropriate documentation) but cannot use these prior circumstances as the basis of an appeal (see the previous paragraph in this section).

Formation of the Dissertation Committee

Upon successful completion of the qualifying examinations, the student will select one or more dissertation supervisors. The dissertation supervisor must be a graduate faculty member in the

Statistics, Actuarial and Data Sciences Department. The student will form a dissertation committee in consultation with the dissertation supervisor. This **dissertation committee will be chaired by the supervisor and must include at least two other graduate faculty members**. Two members of the dissertation committee must be from the Statistics, Actuarial and Data Sciences Department. Members from outside the Statistics, Actuarial and Data Sciences Department cannot serve as the only chair. A completed doctoral dissertation must be approved by the dissertation committee and by the Office of Research & Graduate Studies.

Guidelines for Ph.D. Dissertation

Students are required to successfully complete at least 12 credit hours of STA 898 (Dissertation). The dissertation must consist of original work and can combine scholarly, analytical, creative, and expository skills. It could consist of research on a topic in statistics or research on a topic related to the teaching of collegiate statistics. Before starting the dissertation work, the project to be undertaken must be approved by the dissertation committee and by the College of Graduate Studies. If human subjects, animals, or recombinant DNA are involved, the student must receive approval from the appropriate committee.

Verification of such approval is demonstrated by the completion of a Dissertation [Prospectus](#). The STAD department requires that a student whose dissertation work does not involve human subjects, animals or recombinant DNA submit his/her prospectus within **one year** after completing qualifying exams.

Upon the completion of coursework, qualifying examinations, internship, and dissertation, the candidate for the Ph.D. degree must pass a final oral examination which is a dissertation defense in a colloquium format. The student's dissertation committee determines whether the student passes the oral examination.

Preparation and Completion of Dissertation

The dissertation must be prepared according to the regulations prescribed in the Office of Research & Graduate Studies' most recent edition of the [Guidelines for the Preparation of Theses, Dissertations, Book\(s\) & Journal Article\(s\)](#).

Once a student passes the dissertation defense and is approved by the dissertation committee members, the student must submit the [Dissertation/Doctoral Project/Journal Article Completion Sign-off](#) form. This form is also signed via DocuSign procedures by every committee member and the Department Chair. A preview [form](#) is available.

Internship Application Policy for Ph.D. Students

There are two options for internship experience for Ph.D. students to choose from:

- Three hours of teaching internship experience
- Three hours of industrial non-teaching internship

Each Ph.D. student is required to choose one of the internship experience options after passing the qualifying exams. Details about the internship policy and procedure for applying for the internships are available in a separate Internship Handbook.

Internship/Practicum/Plan B Project Application Policy for M.S. Students

After completing one year of coursework, students in the M.S. in Applied Statistics and Analytics program may choose to complete three hours of a non-teaching professional internship/practicum or three hours of a Plan B Project.

- Internship generally refers to working as an intern in industry or an agency for 12 weeks in summer or a half-time position during a regular semester. Details about the non-teaching professional internship policy and procedure for applying for the internship are available in a separate Internship Handbook.
- Practicum generally refers to working at the Statistical Consulting Center for 12 weeks in summer or working on an applied research project for a semester or 12 weeks in summer with a regular faculty member not from the Department of Statistics, Actuarial and Data Sciences.
- A Plan B Project generally refers to working on a research project with a regular faculty member in the Department of Statistics, Actuarial and Data Sciences.

If a Ph.D. student plans to withdraw from his/her program and plans to complete a M.S. degree, a passed qualifying exam will be counted towards the completion of a Plan B Project provided the 600-level course for the qualifying exam does not count towards the M.S. degree coursework.

Independent Study Policy

If the independent study topic is related to your research work and not part of a regular course, the course number is STA 597, 697 or 797. The following is the procedure to sign up for the independent study course:

- Look for a faculty who is willing to give the independent study.
- Ask the faculty to send an e-mail to you and the department secretary that (i) the faculty member agrees to offer the independent study and (ii) include the topic (e.g., related to dissertation/thesis).
- The student will register for the course through the Course Search/Registration/Drop & Add procedures through the student's "My Account". The student will need to ask for a Registration Exemption when registering for the course. This Registration Exception will then be approved by the Department Chair.

For courses other than those listed under the Independent Study Policy in above, there are regular courses, and they should not be offered as STA 597, 697 or 797. For example, a student should not sign up for STA 682 as STA 697. Any regularly scheduled course like STA 682 can only be taken as an Independent Study with prior approval of the Graduate Committee. The following is the procedure to sign up for such an independent study:

- Consult with your academic advisor and have your advisor approve your request.
- Find a faculty (hereafter referred to as instructor) who has taught the course before and is willing to give you the independent study.
- Send an e-mail to notify your academic advisor, the instructor and the graduate coordinator with your request and ask them to approve the independent study.
- Upon their approval, contact the Graduate Coordinator for final approval.
- The Graduate Coordinator will either approve/reject the request.
- Once the decision is made, the Graduate Coordinator will inform the academic advisor, instructor, student, and department secretary.
- If the request is denied, the student can appeal to the Chair of the department within one week of such a decision.

Time for Completion of Degree

Students are expected to complete all degree requirements in a timely manner. Coursework and other requirements must be completed within the following time limits:

- Within seven years prior to the award of a master's degree.
- Within eight years prior to the award of a doctoral degree if the student had a relevant graduate degree when beginning the program.
- Within ten years prior to the award of a doctoral degree if the student began doctoral study without a prior relevant graduate degree.

Graduate Teaching Assistantships

The department has teaching assistantships available for students in the graduate program. Graduate Teaching Assistantships (TA) are awarded on a competitive basis. A student who is supported by a TA must complete an online workshop offered by the department prior to the first semester of TA duties. This policy applies to all new Teaching Assistants, regardless of their status as a new or returning student and regardless of prior teaching experiences. Returning students and students who are not offered a TA position are welcome to take the online workshop.

A half-time Graduate Teaching Assistant will normally teach one lower-level statistics course or lead lab sessions for data science courses. For a full-time Graduate Teaching Assistant, in addition to the workload of a half-time teaching assistant, they will also work at the Mathematics Tutoring Center and/or as a grader for regular faculty for a total of no more than ten hours per week. If a TA is assigned to teach two lower-level statistics courses or to teach one lower-level statistics course and to lead lab sessions for data science courses then no tutoring or grading is required.

Experienced GTAs may teach courses other than lower-level courses in statistics. If a student is supported during the summer sessions, the duties normally include tutoring students in lower-level statistics courses or assisting a faculty member with a research project or with grading. Detailed descriptions of teaching policies are in Part IV of this handbook.

Stipend and Tuition Benefits

For information regarding stipend and tuition benefits for graduate teaching assistants, please refer to the agreement between CMU and the graduate student union at https://www2.cmich.edu/office_provost/academic_administration/FPS/Pages/default.aspx or contact Faculty Personnel Services.

Graduate Research Assistantships

The department has a number of Research Assistantships available for students in the Ph.D. or M.S. programs. Research assistantships are awarded on a competitive basis. Students who are more likely awarded the research assistantships may include

- Students chosen by a faculty member within the department who has research grant to support the student.
- Students who are at the final stage of completing their dissertation work, especially for those who will graduate within one year.
- New Ph.D. students who have excellent academic credentials.

Students who receive Research Assistantship positions during the summer may be assigned to work on a project with a faculty member.

Policy on Reappointment of Graduate Assistantship (TA or RA)

The Graduate Assistantships offered by the Department of Statistics, Actuarial and Data Sciences are awarded for one academic year. *Reappointment is not guaranteed.* The reappointment decisions of graduate teaching assistants are made by the Graduate Committee based on the Criteria for Evaluation of Graduate Students (see below.)

Assistantships awarded to students in a master's degree program are renewable for one additional year.

A doctoral student who entered the program with master's degree and is supported with assistantship by the Statistics, Actuarial and Data Sciences department is eligible for such support for a maximum of five (5) years. A doctoral student who entered the program with a bachelor's degree is supported with assistantship by the department is eligible for such support for a maximum of six (6) years. If students were admitted and supported in our master's program, the years they were supported as master's students counts in their six (6) years of funding.

Criteria for Evaluation of Graduate Students

Graduate students will be evaluated periodically in order to track performance. Students will be evaluated both in their progress towards their degree and in their teaching performance (if they are Graduate Teaching Assistants). The criteria for the evaluation of a graduate student includes the following:

Teaching Performance of Graduate Teaching Assistants

- Preparation for and delivery of instruction:
 - Is the GA well prepared for his/her class?
 - Does the GA prepare and take all needed materials to the class?
 - Does the GA use the class time effectively?
 - Does the GA deliver statistics/mathematics instruction soundly and logically?
 - Does the GA attempt to help connect statistical/mathematical ideas in his/her lessons?
 - Does the GA assess students' progress using various methods, such as homework, quizzes, and tests, in a timely manner?
 - Does the GA grade and return graded material promptly?
- Communication with students:
 - Does the GA speak clearly and write legibly?
 - Does the GA take questions from students and answer them clearly and completely?
 - Does the GA provide students with information about syllabi, exams, tutoring hours, and department and university policies?
 - Does the GA give adequate office hours? Does the GA hold those office hours?
- Other teaching related duties:
 - Does the GA have a clearly stated grading policy in her/his syllabus?
 - Does the GA keep accurate record of students' grades?
 - Does the GA attend all required course meetings?
 - Has the GA completed RCR training?

Progress in the Degree Program

- Completion of RCR training:
 - The Graduate Committee, in determining the completion of these requirements, will use the record on file regarding the training.

- Progress in coursework:

To determine the progress in coursework,

 - Master's students must complete the Advising Worksheet (see Appendix D) with a two-year plan of study in consultation with their academic advisor during their FIRST SEMESTER of enrollment and update the grades at the end of spring semester to keep the academic performance data current on the Advising Worksheet. The Graduate Committee will examine the grades earned in the courses (on the plan of study) and the student's GPA.
 - Ph.D. students must complete the Advising Worksheet (see Appendix D) in consultation with their advisor during the FIRST SEMESTER of enrollment and update the grades at the end of spring semester to keep the academic performance data current on the Advising Worksheet. The students must meet with the academic advisor at the beginning of the fall semester to update the Advising Worksheet with an updated two-year plan. The Graduate Committee will examine the grades earned in the courses (on the plan of study) and the student's GPA.
 - Students must submit their completed (signed by the Academic Advisor) Advising Worksheet to the department secretary prior to the request of graduate assistantship renewal in early spring semester.

- Progress in Ph.D. Dissertation/Master's Plan B Project:
 - Supervisors of a Plan B Project or Ph.D. dissertation will be consulted by the Graduate Committee to determine a student's progress.

- Completion of Ph.D. qualifying examinations:
 - The Graduate Committee, in determining the completion of this requirement, will use the letters on file regarding qualifying examination results.

- Completion of Ph.D. teaching internship or non-teaching industrial internship:
 - The Graduate Committee, in determining the completion of the teaching internship requirement, will use internship portfolios and comments from course supervisors.
 - The Internship Coordinator, in determining the completion of the non-teaching industrial internship requirement, will use the final report and portfolio, and field supervisor evaluation form.

- Completion of master's non-teaching practicum or industrial internship:
 - The Internship Coordinator, in determining the completion of the non-teaching practicum or industrial internship requirement, will use the final report and portfolio, and field supervisor evaluation form.

- Completion of Ph.D. Prospectus:
 - The Graduate Committee, in determining the completion of this requirement, will use the Prospectus submission form approved by the Office of Research & Graduate Studies.

Additional Funding Opportunities from the Department, College or University

- The Department of Statistics, Actuarial and Data Sciences and the College of Science and Engineering have funds available for graduate students' professional growth activities (for example, travel funds to present research results at a conference.). For department support, you can find the GA Conference Grant Application Form in the Appendix of this Handbook. For support from the CSE College, contact the CSE Office for information.
- The Office of Research & Graduate Studies has student grants that provide support for graduate students. The 2022-2023 [guides and applications forms](#) will be available at the beginning of the Fall 2022 semester for the following graduate student grants:
 - Graduate Assistant (GA) Conference Grant
 - Student Performance, Exhibition, Competition or Presentation (PECP) Grant
 - Student Endeavors Grant
- The Dean's Competitive Research Assistantship for master's students. The CSE Dean's office provides several competitive research assistantships for new graduate student applicants who are from other institutions. The awardees will receive two years of RA support, including regular semesters and summer, and tuition waivers. The Graduate Committee is responsible for selecting and nominating three new applicants along with their credentials to the Chair of the Department for approval and forwarding the applicants' names to the Dean's Office for competition among all submitted new graduate applicants in the College of Science and Engineering. A maximum number of two candidates from a department may be awarded.

Part II: Timeline of Important Activities and Tasks

As a current graduate student, maintaining strong academic work is your primary responsibility. Beginning in the first year of your graduate program, there is a list of activities and tasks you need to complete on an annual basis. These activities and tasks are described in the Graduate Student Handbook and Internship Handbook. It is essential that you carefully read through these handbooks to learn about various activities and tasks along with departmental policies that are related to your responsibilities or your rights as a current graduate student in the Department of Statistics, Actuarial and Data Sciences.

The Approximate TimeLine of Important Activities and Tasks:

Timeline	Activities	Remarks
August	New TA Teaching Online Workshop	This is required for all first time TA's
	New Student Orientation Day	This is required for all new graduate students, but optional for current students
	August Qualifying Exams	August Qualifying Exams are usually scheduled during preparation week, just prior to the first week of classes in the Fall Semester
	Deadline for submitting Thesis/Dissertation/Journal Article(s)/Book(s) to Graduate Studies for August graduation	See exact date on the Graduate Student Deadlines webpage
September	Qualifying Exam results are announced	The results will be announced about 3 weeks after the August Qualifying exams
	Plan/update course work by completing the Department Advising Worksheet and consulting with the Academic Advisor	This should be done during the early fall semester. The worksheets are in Appendix D of this handbook and are available on the Information for Current Graduate Students webpage.
	Teaching Internship Application for Spring semester (Ph.D. students only)	Students will receive the form from the department
October	Sign-up for January Qualifying Exams	Students will receive the sign-up sheet from the department in October
	Graduation application deadline for March or May graduation	See exact date on the Graduate Student Deadlines webpage
	Deadline for submitting Thesis/Dissertation/Journal Article(s)/Book(s) to Graduate Studies for October graduation	See exact date on the Graduate Student Deadlines webpage
	Application deadline for Student Performance, Exhibition, Competition, or Presentation (PECP) Grant – Fall Events	See exact date on the Graduate Student Deadlines webpage
	Application deadline for Student Endeavors Grant	See exact date on the Graduate Student Deadlines webpage
November	In-class visits for TA evaluation; the department graduate faculty members will visit every TA each semester.	The visits usually occur in October or November for fall
December	Reminder of January Qualifying Exams	Department sends a reminder of January Exams to students and to Exam Committee Members

	Search for Industrial Internship opportunities	Students in M.S. program begin looking for industrial internship opportunities. Ph.D. students interested in industrial internship should also take action. Read through the Internship Handbook and contact the Internship Coordinator to identify industrial internship opportunities.
	Deadline for submitting Thesis/Dissertation/Journal Article(s)/Book(s) to Graduate Studies for December graduation	See exact date on the Graduate Student Deadlines webpage
January	January Qualifying Exams	January Qualifying Exams are usually scheduled just prior to the first week of classes in the Spring Semester
	Applications for Graduate Student Admission & Financial Support are processed	Admission submission is on the College of Graduate Studies website at https://fireup.cmich.edu/apply/
	Contact companies/agencies to secure industrial internship opportunities	Contact the Internship Coordinator and internship companies/agencies to look for internship
February	Requests for Renewal of GA support and requests for Summer funding are submitted	A form will be sent to supported students late January or early February. Students must submit the Advising Worksheet prior to submitting summer funding requests.
	Application for graduate admission and support. Admission decisions are made once the admission materials are complete. Deadline for consideration of financial support is February 15.	See Information for Prospective Graduate Students on the STAD Department website for details
	Graduation Application deadline for June or August graduation	See exact date on the Graduate Student Deadlines webpage
	Application deadline for Student Endeavors Grant	See exact date on the Graduate Student Deadlines webpage
March	Teaching Internship Application for fall semester (Ph.D. students only)	Students will receive the form from the department
	Sign-up for August Qualifying Exam	Students will receive the sign-up sheet from department at the end of March
	Application deadline for Student Performance, Exhibition, Competition, or Presentation (PECP) Grant – Spring Events	See exact date on the Graduate Student Deadlines webpage
	Application deadline for Student Creative & Research Endeavors Exhibition (SCREE)	See exact date on the Graduate Student Deadlines webpage
	Deadline for submitting Thesis/Dissertation/Journal Article(s)/Book(s) to Graduate Studies for March graduation	See exact date on the Graduate Student Deadlines webpage
March April	In-class visit for TA evaluation; the department graduate faculty members will visit every TA each semester.	The visits usually occur in March or April for Spring Semester

	Secure industrial internship	By the end of March, industrial internships should be secured. Contact the Internship Coordinator to complete the required forms. See Internship Handbook for details.
	Announce summer support and work duty	Students who receive support will be informed about their duties in early April
	Announce support renewal for fall of the next academic year	Students who receive support will be informed of their duties in early April
April May	Conduct a survey of TA's course schedule for the next fall semester	In order to properly assign TA's teaching schedule(s) for the next academic year, a survey to collect TA's course schedule(s) is conducted in early April.
	Secure and prepare for industrial internship	By the end of April, all forms required for industrial internship must be signed and submitted to the Internship Coordinator
	Graduation Application Deadline for October or December graduation	See exact date on the Graduate Student Deadlines webpage
	RCR Training. M.S.: due end of 3 rd semester. Ph.D.: due one semester after completing Qualifying Exams	See Appendix B of the Graduate Handbook for detailed instructions.
	Industrial internships begin. Prepare the e-journal on Blackboard.	Some internships will begin in May and some in early June. Each student is required to write the weekly e-journal on Blackboard throughout the internship period.
June	Deadline for submitting Thesis/Dissertation/Journal Article(s)/Book(s) to Graduate Studies for June graduation	See exact date on the Graduate Student Deadlines webpage
	Application deadline for Student Performance, Exhibition, Competition, or Presentation (PECP) Grant – Summer Events	See exact date on the Graduate Student Deadlines webpage
June July, August	Internship Evaluation, Portfolio and Final Report.	At the end of the industrial internship, each student will be evaluated by the Internship Field Advisor and complete a portfolio and final report to be submitted to the Internship Coordinator for grading.

NOTE: It is important that every student carefully read through the Graduate Student Handbook and the Internship Handbook to get familiar with your responsibilities and rights, as well as many policies that affect your daily academic life at CMU.

Part III: Important Information from the Department Office for Graduate Assistants

Office Hours, Local Phone, and Emergency Contact

At the beginning of each semester, you will receive an email from the Statistics, Actuarial and Data Sciences Department office requesting your local phone and office hours. Your office hours will be posted in a variety of places including the Statistics, Actuarial and Data Sciences Department webpage. If your office hours change during the semester, please email the updated information to the STAD Department Secretary, Shari Jackson (jacks1se@cmich.edu), as soon as possible.

To update your personal information with the University, log onto the Central link website with your global ID and password; click on “My Account”; “My Profile” then “Address Change” and make the necessary changes. “My Profile” also contains your “Emergency Contact Information.” It is important to keep this information up to date.

Keys

All new GAs will receive the following keys:

- a key to your office door that also opens the copy room (PE 102), the STAD Student Research Room (PE 109) and the main office (PE 105)
- a key that can open:
 - PE 403 (STAD computer lab)
 - Any STAD classroom in Pearce Hall
 - All common classrooms in Pearce (these are classrooms not owned by a specific department)
 - Any outside door to Pearce Hall
- You will be required to sign a statement acknowledging which keys you have received. Please read this form carefully BEFORE you sign it and feel free to ask questions. There are consequences for losing keys.

Mailboxes

Every GA will have a mailbox in the workroom in Pearce 105. You should check your mailbox daily for notes about teaching your classes and you should empty your mailbox on a regular basis.

E-mail/Computer Assistance

All GAs should be using their CMU email account and checking it daily for departmental emails. If you need computer assistance, you can either contact the CMU Help Desk at 774-3662 or submit an email request to helpdesk@cmich.edu.

Photocopying

- All GAs will receive a copy code (the last 4 digits of your CMU id). This code will work on the photocopier in the department (PE 102).
- Do **NOT** give your copy code to others. Unauthorized copies or sharing of your copy code may result in charges to the GA. Too many unauthorized copies could result in termination of copying privileges.
- Prior to using the photocopier, please ask the department staff for a brief explanation of how to operate the machine properly.
- Please do not run blank sheets of paper through the copier! **The department is charged for all sheets run, blank or not.** Use of colored paper is acceptable.

- GTAs can make photocopies for teaching purposes only. A GTA teaching a 3-credit hour class would normally make 500 copies or less per class per month. The number of photocopies you make will be reviewed monthly by the Department Chair.
- Department/College-supported research GAs can make copies for research purposes only. The number of copies should be minimal (less than 100 per month).
- It is important that you observe U.S. copyright laws. Do not put yourself or the STAD Department in legal jeopardy by making unauthorized copies of copyrighted material.
- If you have questions regarding the foregoing, please contact the Department Chair.

Supplies

You will be given supplies at the beginning of each semester. Please return any unused supplies to the department office no later than the end of each semester. These supplies and those in the workroom are for teaching purposes only.

Payroll

GTAs are paid bi-weekly. You can retrieve your pay statements electronically on CentralLink by clicking on “My Account”, “My Work Day” then “My Pay Statement.” If you have further questions, please call CMU Payroll and Travel Services at (989)774-3481.

Information about [your pay](#) and [direct deposit options](#) are on the CMU Payroll and Travel Services website. There are two pay options:

- Direct Deposit
 - Have your paycheck sent directly to the checking or savings account of your choice at any financial institution in the United States. It is the safest, most confidential way to have electronic access to your pay. You are able to send your money to more than one financial institution and/or account at the same institution.
- CMU Pay Card
 - This is a stored value Debit card that is accepted at millions of locations nationwide that accept MasterCard® debit cards, (withdraw cash, pay bills, shop) you can use your card just about anywhere!

Custodian Issues

- If there is any type of spill or accident that needs to be cleaned in Pearce Hall on Monday thru Friday between the hours of 8:00 a.m. and 5:00 p.m., contact the STAD Department Office at (989)774-7464.
- For any issues before 8:00 a.m. or after 5:00 p.m. or on the weekends, call Action (the answering service for FM) at (989)772-8225. Please indicate the location and type of cleanup needed when you call.
- **DO NOT** try to clean up any type of body fluid (blood, vomit, etc.) on your own.

Office Etiquette and Professionalism

Most GAs will have a desk and two drawers in a filing cabinet. Your desk and drawers are marked with a label with your name. Please do not remove the labels.

You should keep your office clean and organized; DO NOT leave food or trash anywhere in the room. Custodians are not able to clean your offices effectively if there is litter on the floor. It is your responsibility to clean/dust your desk/tabletop.

PLEASE DO NOT store items on the tops of file cabinets or in the common areas. DO NOT write on furniture or post any items on furniture that will not remove easily or that will leave marks. DO NOT post anything on the walls.

Remember, the impression students and other visitors get from your office/desk area reflects upon the department as a whole. Please do your best to make it a positive impression.

Questions

Contact the STAD Department Executive Secretary if you have questions regarding:

- Paychecks and tuition
- Budget issues or reimbursements
- Keys
- Photocopy codes
- Mailboxes
- Student Opinion Surveys
- Books for classes you are teaching
- Supplies
- Registering for classes

STAD Contact Information:

STAD Department Chair:

Dr. Felix Famoye

famoy1kf@cmich.edu

(989)774-5497

STAD Department Office – Pearce 105

STAD Department Executive Secretary:

Shari Jackson

Jacks1se@cmich.edu

(989)774-7464

STAD Department Office – Pearce 105

Part IV: Graduate Teaching Assistant Information

If you have any questions or need further information, contact the Teaching Assistant (TA)

Coordinator:

Dr. Daniel Wang
Office: Pearce 118
Phone: (989)774-6520
Email: wang1dx@cmich.edu

Introduction

The information in this section is designed to answer common questions you may have as a Teaching Assistant in the Statistics, Actuarial and Data Sciences Department at Central Michigan University and should be used together with the textbook publisher's material to aid you in your job of teaching. Be sure to read through all material in this part of this handbook **before** teaching your first class.

Most new TAs will be teaching STA 282QR (Introduction to Statistics) the first semester. This three-hour course meets either two 75-minute or three 50-minute periods a week for the entire semester. STA 282QR is a highly coordinated course; a TA faculty course coordinator establishes the semester grading scale, curriculum, and calendar, and creates the exams and keys. You will proctor and grade exams, create and grade weekly quizzes and/or other assessments, and you will assign final semester grades for your students. A senior graduate student called a TA mentor may be assigned to each TA and the TA mentor will meet with you weekly to discuss your progress and issues you may face in your classes. The TA mentors would provide the answers from their capacity in a friendly manner. If the TA mentors cannot resolve the issues, your questions will be directed to the TA coordinator. This TA mentor-mentee bond is very important for you to succeed as a teacher and graduate student.

The prerequisite for STA 282QR is MTH 105 or mathematics competency. Your STA 282QR students should be familiar with the following: rational and radical expressions and equations, integer and rational exponents, functions, graphs, systems of equations and inequalities, and quadratic equations. In STA 282QR the emphasis is on descriptive statistics, probability, sampling distributions, statistical inference, and regression. The course is a Quantitative Reasoning (QR) course. Projects and activities are to be given to students. The projects and activities are designed to test the students' quantitative literacy; that is students must be able to use the knowledge they gain in the course to interpret, represent, calculate, analyze, make assumptions, and communicate everyday problems.

Some of your STA 282QR students dislike and/or fear STEM subjects and have never been very good at it. As a teacher you will need to be non-threatening and supportive. Go as slow as the course syllabus allows (this may still be too fast for some). Give your students opportunities to ask questions and never belittle or embarrass them, even if you think a question is trivial.

Your Responsibilities

Classroom Instruction

Most of you will be teaching sections of 35-40 students. Do prepare written lesson plans, even if this material is easy for you. Have a **written** set of lecture notes and have examples and problems, especially story problems, **worked out completely**. Try to find more than one approach to get to the solution of a problem so that you can explain problems effectively. You should be prepared to set up and work every

problem in the assignment. If you do run into trouble in explaining a problem during class, politely ask if you could have some more time to think about the problem and that you will finish the problem next time. Then be sure to return to it the next class period! There is nothing students hate worse than a teacher who promises to show them something next time and then forgets to do it (or still cannot do it the next day!) See the TA Faculty Course Coordinator if you have questions or concerns regarding classroom or teaching issues/techniques.

If You Cannot Make Your Class

During the semester, you may end up getting sick, having to go to a funeral, or having some other situations happen where you will need to miss class. Contact Dr. Famoye, the STAD Department Chair as soon as you know you need to arrange for a substitute. As per the Graduate Assistant Contract, you should make reasonable effort to find a substitute. Once arrangements are made notify Dr. Famoye and the TA Coordinator with the name of the person substituting, the section(s), location, and day/time. If after reasonable effort you are not able to find a substitute notify Dr. Famoye and the TA Coordinator, so a replacement may be found. **Classes will not be canceled** unless there is a university-wide closure. Never cancel class for a personal reason! Information about weather-related university cancellations can be obtained by calling (989)774-7500.

Class Times

It is important to be on time for all scheduled classes. Also, you should **NOT** dismiss your scheduled classes early before the end of the time period. Have **plenty of problems available** for student practice in case you finish early.

Office Hours

You are required to hold a minimum of three office hours per week. The time you tutor at the MAC center counts as one hour of your office hours. Schedule office hours so they DO NOT follow class sequences - stagger your posted hours. For example, if you have office hours on Monday and Wednesday 1-2pm those students who cannot make Monday 1-2pm due to a class will not be able to make Wednesday's office hours either. Instead have Monday and Tuesday 1-2pm, or Monday 1-2pm and Wednesday 2-3pm. Whatever time you schedule and announce to your students should be rigorously observed. Make sure you announce the open hours of the MAC tutoring center to your students. If you need to cancel an office hour for some reason, let your students know ahead of time and schedule another make-up hour sometime in the near future. Submit your office hours to the department secretary by end of the first week of the semester for posting on the Statistics, Actuarial and Data Sciences Department web page and on the office bulletin board.

Testing and Grading

If you are teaching STA 282QR, all sections take the same exams and use the same grading scale. Information about grading and testing is found in the Course syllabus and will be discussed at instructor meetings for these courses. Whatever course you teach, it is important to be consistent and fair in assigning grades. Grading scales should be determined in time to include in your syllabus the first week of class.

STA 282QR students may use an on-line homework system called MyLab. Student homework will be graded automatically, and students will receive instant feedback. In addition to homework, students should be evaluated in all or some of the following: quizzes, projects, activities or exams. They need

frequent feedback on how they are doing. Frequent evaluation encourages attendance and motivates the students to do the work. The daily grade should accurately reflect what the student knows and what effort he/she is putting forth. Use a combination of in-class quizzes, take-home quizzes (no more than one) or group work. DO NOT rely solely on take-home quizzes or group work as on exams a student is expected to recall information without notes, textbook or friends to help.

For STA 282QR class, no extra credit is allowed during the semester except for that which is on the exams. It is not fair if one instructor is handing out extra credit opportunities. It is fine to drop some quiz scores or give a makeup quiz if the class did not do well on a particular quiz or give an open book or group quiz.

Attendance

Take attendance each day in some way. During the semester you may be contacted by academic advisors, scholarship programs, or the athletic department checking on how many times a student has missed class or what assignments are missing, etc. If a student has financial aid and fails the course, at the end of the semester you are required to provide the student's last day of attendance. If you are giving a quiz or exam this can act as an attendance check, otherwise you can create an attendance sheet or just pass a sheet of paper around and have everyone sign in. This takes no additional class time. If a student has poor attendance, his/her daily grade is normally affected by lowered quiz or homework scores, etc. You can also use attendance as a decision-making factor in assigning grades at the end of the semester for students with borderline grades.

Instructor Meetings

The prep-week meeting is REQUIRED for STA 282QR instructors. The intent of the prep-week meeting is to go over the course materials, especially for new instructors, share problems and concerns, and plan teaching strategies.

Syllabus

Create a syllabus with pertinent information for your class. Post a pdf syllabus in your Blackboard course. Required information on the syllabus: office hours, contact information (office number and phone, email), required materials, course objectives and outline, grading scale and policies (including if you allow for making up missed work), and the accommodation statement – which must be copied and pasted exactly as written in the sample syllabus on the next page. On the next page is a sample of STA 282QR course syllabus, which you may adapt to fit your needs. In addition, the university statement on students with disabilities (see last paragraph of the sample syllabus) must be copied verbatim. All TAs are required to submit a copy of their syllabus to the department secretary each semester.

End of Semester

At the end of each semester, for each class that you teach, you need to turn in a copy of your final grades, a copy of your grade records (grade book or spread sheet) and graded final exams to the department secretary. Make sure to keep all grade records accessible in order to answer a student's questions about the final grade.

At the end of your contract, you need to return all keys, textbooks, etc. as required by the department. Also leave your forwarding address and other contact information (telephone number, e-mail address, etc.) with the department secretary.

Syllabus Example

STA 282QR Course Syllabus Introduction to Statistics

Section Number: xxxx9101

Spring 20xx

Department of Statistics, Actuarial and Data Sciences

Time: T Th 2:00-3:15 pm

Room: Pearce Hall 136

Instructor: Dr. First Last

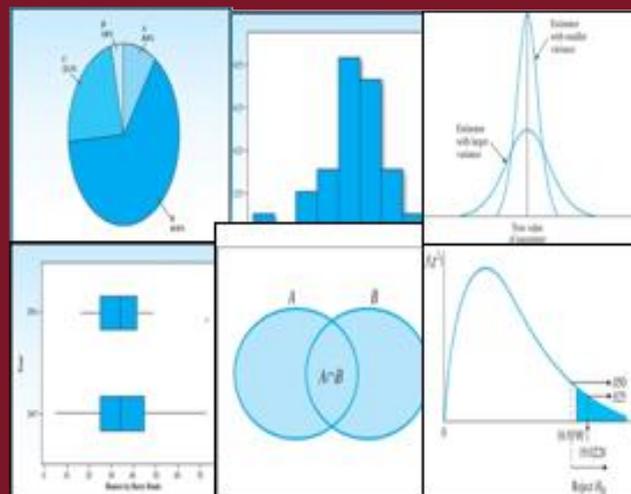
Student hours: Wed 2:00- 4:00 pm or
by appointment

Office: PE 206I

Phone: (989) 774-xxxx

Email: xxxxx@cmich.edu

I look forward to seeing you during student hours.



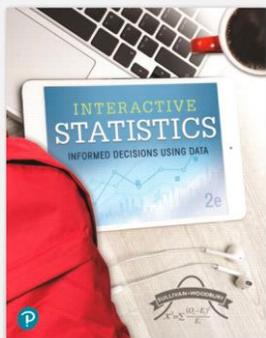
Welcome to our class!

See **Blackboard** for course materials, online homework assignments, interactive assignments, class performance, and other information.

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special needs, tips for success in this class, additional resources	

REQUIRED TEXTS



Interactive Statistics: Informed Decisions Using Data, 2nd Edition
by M. Sullivan, III and George Woodbury,
Pearson

Course Description and Objectives

This course covers descriptive statistics, probability, sampling distributions, statistical inference, and regression.

Upon successful completion of the course, you will be able to:

- Use the language and notation of descriptive and inferential statistics.
- Describe the basic concepts of counting and probability.
- Describe data with numerical measurements.
- Explain the reasoning behind certain statistical methods used in estimation and hypothesis testing.
- Apply the basic statistical techniques and procedures for solving estimation problems and hypothesis testing problems.
- Apply simple linear regression analysis to solve problems.
- Develop interest in the future study of statistics by improving statistical literacy.

Course Requirements

Technology

A calculator (e.g., TI 84 plus with STAT and DISTR functions) is required to perform statistical computations in class. StatCrunch or any other software can be used for activities, interactive assignments, homework, and projects. StatCrunch is integrated as a part of MyLab/Mastering system; see <http://www.statcrunch.com>.

Description of Course Requirements

Master Materials in Textbook Chapters: Three Exams, Twelve Homework Assignments, Six Quizzes

Exams, Homework, and Quizzes are scheduled in advance. You are supposed to complete Homework Assignments on MyLab by logging into your **Blackboard (BB)** – <http://www.cmich.edu/blackboard>. It is always advised to use Firefox or Google Chrome for this process. *Right-click* the **MyLab** tab on **BB** and **Open link in New Window**; this will direct you to the MyLab website. If it does not bring you to the MyLab website, please *disable protection* by clicking on the padlock appear in the address bar. Each Homework assignments consists of several sections and complete all those to earn credits on Homework. For example, Homework 1 consists of Sections 1.1, 1.2, 1.3, and 1.4, and completing all of them will fulfill the requirements for Homework 1.

It is recommended to complete interactive assignments before working on homework assignments. The interactive assignments show how to use technology to complete homework assignments.

Exams and Quizzes are based on the information presented in the textbook and class. Quizzes will be given with closed book and notes. However, you are allowed to use a formula sheet for exams. The formula sheet is limited to 8.5"x11" size page (both sides). The final exam will be comprehensive.

Participate in Activities and Projects

To help you better understand the statistical concepts learned in class, you are required to complete two classroom activities and a final group project. For the final project, it is required to submit a project proposal for a data set provided by your instructor. Your proposal should clearly explain the topic of the project and data analyzing methodologies. Upon the instructor's approval, your group can execute the proposal and submit a final project report by the due date listed in the schedule.

Some rules when working as a group:

Make sure to cc your project-related email conversations to all your group members. Each member must be assigned to a specific task. If a group member does not contribute or is unwilling to take on work, try to work it out among yourselves first. If unsuccessful you may ask your instructor to discuss this with your group members.

Grade Scale (Grades will be based on the following)

Quizzes – 100 pts

Homework – 150 pts

Activity 1 & 2 and Participation – 100 pts

Group Project – 150 pts

Exam I – 150 pts

Exam II – 150 pts

Final Exam – 200 pts

Approximate Grading Scale (minimum cutoffs):

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
930	900	870	830	800	770	730	700	670	630	600	< 600

An incomplete grade is allowed only if the case completely follows the university rules.

Policies

Class Attendance

Class time is used to demonstrate course material, do class activities, and discuss some important information useful for this course. Class attendance will be recorded, and the instructor may contact you if you miss more than three days of class. The participation grade is based on your attendance and participation on class activities.

Make-Up Exams and Quizzes

1. Homework and Quizzes are scheduled in advance. No make-up quizzes will be given. If you miss a quiz, the score will be zero. The lowest quiz grade will be dropped, and it could be the quiz you missed. Late homework submission is not permitted or accepted for grades.
2. Attendance at the scheduled exams is required. No make-up exams will be given unless you present verification for your absence in advance. If it is not possible to bring your documented excuse in advance, you must bring it in no later than the first lecture after the test. Make-up exams will be given for your illness and family emergencies with proper verifications.

Electronic Devices

You are not allowed to use electronic devices during class time. Speak with the instructor if you need to use electronic devices for your special needs.

Academic Integrity and Responsibilities

Academic Integrity

Because academic integrity is a cornerstone of the University's commitment to the principles of free inquiry, students are responsible for learning and upholding professional standards of research, writing, assessment, and ethics in their areas of study. Written or other work which students submit must be the product of their own efforts and must be consistent with appropriate standards of professional ethics. Academic dishonesty, which includes cheating, plagiarism, and other forms of dishonest or unethical behavior, is prohibited. See CMU Bulletin (<https://bulletins.cmich.edu/>).

Student Rights and Responsibilities

Each member of the Central Michigan University community assumes an obligation regarding self-conduct to act in a manner consistent with a respect for the rights of others and with the University's function as an educational institution. As guides for individual and group actions within this community, the University affirms the general principles of conduct described in the [Code of Student Rights, Responsibilities and Disciplinary Procedures](#)

Resources & Course Calendar

Tentative Course Calendar

	Tuesday	Thursday
<i>January</i>	14	16
	Chapter 1: Data Collection - 1.1, 1.2 & 1.3	1.4 Chapter 2 Summary Statistics - 2.1
	21 (HW1)	23
	2.2 & 2.4	2.4 Chapter 3 Summary Statistics - 3.1
	28 (HW2 & Quiz 1)	30
	3.2 & 3.4	3.4 & 3.5
<i>February</i>	4 (HW3 & Quiz 2)	6
	Chapter 4 Two Variables - 4.1 & 4.2	4.2 & 4.3
	11 (HW 4)	13
	Exam I	Chapter 5 Probability- 5.1 & 5.2
	18	20
	5.3 & 5.4	Activity 1 5.4
	25 (HW 5 & Activity 1 due)	27 (Quiz 3)
	Chapter 6 Discrete Probabilities - 6.1 & 6.2	6.2
<i>March</i>	3 (HW 6)	5 (Activity 2 due & Quiz 4)
	Activity 2 Chapter 7 Normal Distribution 7.1 & 7.2	7.3
	10	12
	Spring Break (no classes)	Spring Break (no classes)
	17	19 (HW 7)
	Chapter 8 Sampling Distribution - 8.1	8.1
	24 (HW 8)	26
	Exam II	Chapter 9 Estimating Mean - 9.1 & 9.2
	31 (Project Proposal Due)	
	9.2	
<i>April</i>	7 (HW 9)	9 (Quiz 5)
	Chapter 10 Hypothesis Testing about Mean - 10.1	10.1 & 10.3
	14 (HW 10)	16 (Project Preliminary Analysis)
	11.1 & 11.2	11.2 & 11.3
	21 (HW 11)	23 (Quiz 6)
	Chapter 14: Regression Analysis – 14.1	14.1
	28 (HW 14)	30
	Review	Project Report Due. Project presentation
<i>May</i>	5 (2:00-3:50 pm)	--
	Final Exam	--

Special Needs

CMU provides students with disabilities reasonable accommodations to participate in educational programs, activities, or services. Students with disabilities requiring accommodations to participate in class activities or meet course requirements should first register with the office of Student Disability Services (120 Park Library; Telephone: 989-774-3018; Telecommunications Device for the Deaf: 989-774-2586), and then contact me as soon as possible.

Tips for Success in this Class

1. Come to lectures with a positive attitude to learn and participate in activities, and don't fall behind.
2. Find some classmates to work together.
3. Set aside study hours for this course and do all assigned reading and homework problems on time.
4. Ask for help whenever needed.
5. Review and study the notes and textbook before coming to class.

Additional Resources

Writing Center

The [CMU Writing Center](#) is a free online service for all CMU students, providing help with grammar, citations, bibliographies, drafts, and editing of academic papers. Suggestions and feedback are typically provided within two business days.

Mathematics Assistance Center

The CMU [Mathematics Assistance Center](#) provides free tutoring in mathematics and statistics to students enrolled in select courses. Tutoring is available online and via telephone.

Career Development Center

The [Career Development Center](#) in Ronan Hall 240 has many services, including peer-to-peer career exploration during walk-in hours and by appointment.

Are you Interested in Becoming an Actuary?

“An **actuary** is a business professional who analyzes the financial consequences of risk. **Actuaries** use mathematics, statistics, and financial theory to study uncertain future events, especially those of concern to insurance and pension programs.”

You may visit the [Actuarial Science](#) webpage to better understand our CMU Actuarial Science program. Also, visit <http://www.beanactuary.org/> to learn more about the actuarial profession.

Additional Remarks and Helpful Suggestions

A graduate faculty in the department will observe each of you at least once during the semester. As per the Graduate Teaching Assistant contract, you will be notified at least 5 days prior to any observation. You will be given a copy of written comments for your use with suggestions on teaching style, hints, preparation, and general improvement. These visits usually start the second week of the semester and will not necessarily be before the first test. So, if you have questions sooner, do not hesitate to contact the TA Coordinator. New instructors will be observed first. If the TA Coordinator's schedule makes it impossible for him/her to see you teach, then another professor will observe your teaching.

Dress code

While the University does not have a formal dress code for students, student employees are expected to dress in a professional manner as it relates to the area of the University for which they are working. Please keep in mind that impressions of an office are often formed through the dress and manner of its employees. Please see the TA Coordinator if you have questions about attire.

Make an effort to learn your students' names as soon as possible

This is useful in so many ways and the students notice and appreciate a teacher who knows them by name. It will help in maintaining good attendance and class order because they will realize you notice when they are absent (or inattentive.) Make a seating chart or pass an attendance sheet around each day, then glance at it while you are lecturing and use the students' names as you teach. Hand back quizzes and tests individually to each student if you have time and look at their faces when you do this. It will help you connect names with faces. You should recognize each of your students' names by the end of the second or third week of class even if you cannot connect the name and the face yet. You should know, for example, when you are grading a test that a particular student is not yours and you have a paper that belongs to another instructor by mistake. Learning students' names will pay big dividends!

Discipline Problems—Student Code of Conduct

Disruptive behavior should not be tolerated and be addressed as soon as it starts. Visit the TA Coordinator any time with any issue for advice and guidance. The University Bulletin Appendix 1, article 3.2.3 and 3.2.4, gives support for an instructor to remove a disruptive student from class. You should be aware that these statements exist and that you have the right to use them if necessary.

Grade books

Grade books may be an electronic spreadsheet, in Blackboard, online with a homework website, or hand-written in an offline book. If you use a hand-written grade book, you may not want to write students' names in it until after the drop-and-add period has ended (about the second week of classes.) Keep their daily work grades written on your class list until then. Using a spreadsheet for grades lends efficiency to your record keeping as you can make edits at any time. It is recommended you keep a hard copy backup of your electronic spreadsheet grades! Record the grades in pencil or pen on a class list printout and then transfer them to the gradebook or spreadsheet. If you simply enter grades from the student's paper to the computer, there will be no way to check if you entered a grade incorrectly. Use a separate column for each quiz or homework score, labeled Quiz #1, Quiz #2, etc. In other words, we need scores itemized individually, not just a running total of quiz or homework points. You must be able to document any and every grade that you give.

Lesson Plans

In planning your presentation of the material for STA 282QR, know the sections to be covered. The course objectives provided by the textbook can be helpful with content for lesson plans. Sometimes not everything in a section is covered and you do not want to use valuable class time discussing something the students are not going to be responsible for. Do the homework problems (or at least the harder ones) to see how involved your lecture will have to be to cover everything adequately.

Classrooms

You will be teaching in Pearce Hall. Classrooms that we use in Pearce Hall are equipped with visualizers. Familiarize yourself with your classroom before the first week of classes. If you need help with using the visualizer, see the TA Coordinator. You will need a code to operate these machines. Visualizer codes may change each semester. You will be given the code.

What to Do if You Finish Your Lecture Early

The usual situation is that we never seem to have enough time to get through all the material in our classes. No matter which course you teach, if you are consistently finishing with your lessons early, you may be going too fast. Most of your students are lost, even though they may not tell you. They may not even realize that they are lost until the exam, when it is too late. Be sure to allow time for students to ask questions about homework or quiz problems or about material you are presenting in a lecture. Come prepared to class with extra examples for student practice. Do not dismiss class early – use every minute available.

Ask your students questions! Questions do not have to be fancy! Some sample questions you could ask your students might include:

- Who did this problem a different way? What was your way?
- Which solution to this problem is easier to understand, mine or Student X's? Why?
- What homework problems did you have trouble with? (You may not have time to go through many of them in class, but at least you will know what problems you are going to be seeing in office hours!)
- Is there some rule or formula that we need for this problem? Tell me the name if you cannot remember exactly what it says.

If you are allowing plenty of time for questions and you still have time left over, try these suggestions:

- Give students some review problems over a topic covered earlier in the week. Let them work in groups while you walk around and answer questions.
- Give a quiz (real or practice—have it made up in advance or pull problems out of the book.)
- Do some review word problems—these are always confusing for these students.
- As a last resort, start some new material, particularly if the topic you are covering seems easy for your students and you know something hard is coming up.

Grading Hints

Keep your quizzes short – 10 to 15 minutes. Use two or three problems. If you do not like making up quiz problems, use homework problems—it encourages students to do homework. Short, frequent quizzes

are more helpful for feedback than long, infrequent ones. They are easier to make and to grade and they do not take as much class time.

Promptness in Grading

It is a courtesy to your students to get their quizzes and exams graded as soon as possible, ideally by the next time that class meets. This is particularly important on the first test, when students with scores below 60% will be thinking seriously about dropping the class and may wish to come in for advice on what to do.

Resources for Undergraduate Students

The [Mathematics Assistance Center](#) has two locations: Park Library room 370 and Troutman Hall 002 (Towers Basement). Free walk-in tutoring is available. The Mathematics Assistance Center in the Park Library is open Monday – Thursday from 9:00 a.m. to 9:00 p.m. and Troutman Hall is available Sunday – Thursday from 5:00 p.m. to 9:00 p.m. Tutoring will begin on the first day of the second week of classes and will run through the last week of classes. The Center is not open during finals week. The goal of the Math Center is to give students additional help and explanations for math and statistics concepts being taught in their courses. Tutors **should not** do homework assignment for students; they **should not** substitute as a student’s instructor when the student has missed class and they **should not** do problems on take home quizzes.

Supplementary Instruction Sessions for many university courses are set up by Academic Advising and Assistance. You will be notified of times and locations and are expected to pass on the information to your students.

Review Sessions before a test can be arranged by individual instructors. They will generally be held in the evening a day or two before the test. Announce the time that you can offer a review session and determine which of the times has the most students available to attend. Be sure to hand out the exam information sheets which you will prepare before each test.

Other Information

Adding (Bumping), Withdrawing, and Dropping a Class

Students may drop and add classes online through mid-night of the first Friday of the semester via Central Link’s course registration site. In general, if a student desires to "bump" into a closed section, they must seek the instructor's approval. Check with Department’s Office for confirmation of the course’s "bump" policy. Students on waitlists have priority over bump requests.

Late enrolled students will be taking the first exam at the regularly scheduled time—they are NOT eligible for a make-up on Exam #1 unless they have an excused absence for exam day. You need to set your own policy, before the semester starts, for how you will handle make-up work (quizzes, etc.) for these students on their daily work grade.

The last day to withdraw from a course occurs at the tenth week of the semester. Students will be doing this online via Central Link. **Note:** The terms “withdrawing” and “dropping” are used interchangeably by many people, but “dropping” a class implies that the student will get a refund of money; “withdrawing” does not. Dropping a class only occurs during the first week’s “Drop and Add” period.

Class Lists

You will access your class lists by using Central Link. You will probably have 35-40 students in your class. You should compare your attendance sheets to your class lists to determine any inconsistencies. Check the online class list frequently during the first few weeks because it will be updated regularly by the Registrar. Once you have the official class list, compare it with your sign-in attendance sheets and make note of any student who is on your list but who has never attended.

Report of Non-Attendance

As previously mentioned, it is highly recommended you take attendance each day. A student did not come to the class at least by the end of the third week of class or a student has quit coming to class, you should click "Non-Attendance" on your Class List and submit a Report. You can submit this report to the Registrar at any time during the semester before the final date to withdraw from a class (tenth week.) Also check to see if you have students attending your class who are not on your lists. They might be attending the wrong section and we need to get them into the correct section.

Student Opinion Surveys

At the end of each semester, you are required to administer course evaluations. These student evaluations are on record in the department office and also on-line. Part of the student evaluation includes written comments that are often helpful in improving your teaching.

Grade Reports

Final semester grades are submitted on-line to the Registrar's Office. You will receive instructions from the Registrar as to how to complete the necessary forms. It is patently unfair and unprofessional to give a student a grade that is higher or lower than he/she earned, whether this was done intentionally or unintentionally.

Giving an Incomplete (I) Grade

If an undergraduate student requests an incomplete grade, visit the TA Coordinator to determine if you are not sure if an "I" is appropriate and instructions for filing such a grade. The CMU policy on giving a student an "I" grade is outlined under Academic Information in the Bulletin. An "I" should be given only when a student has completed with satisfactory grades the major portion of the course requirements and has convinced the instructor of his/her ability to complete the remaining work without re-registering for the course. It is not to be given to a student doing failing work. This is not an easy grade to assign, and although students will pressure you for an "I" rather than an "E" or a "W", you must hold firm to University and Department guidelines. The Department of Statistics, Actuarial and Data Sciences has a special Report of Incomplete form available in the department office.

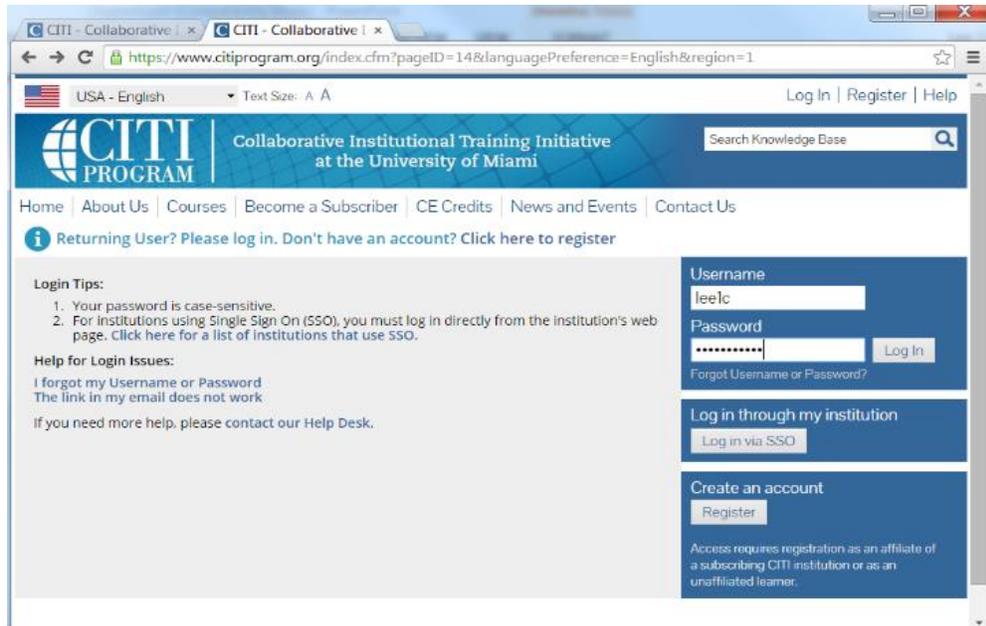
Part V: Appendices

Appendix A: Instruction for conducting RCR Training

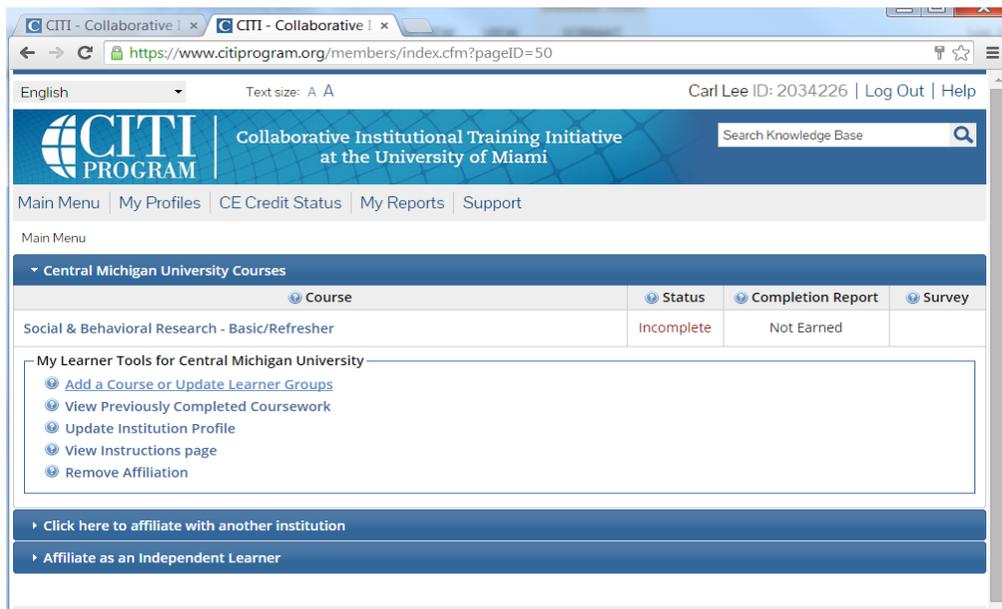
Go to www.citiprogram.org

First time user: You need to register to create your Username and Password.

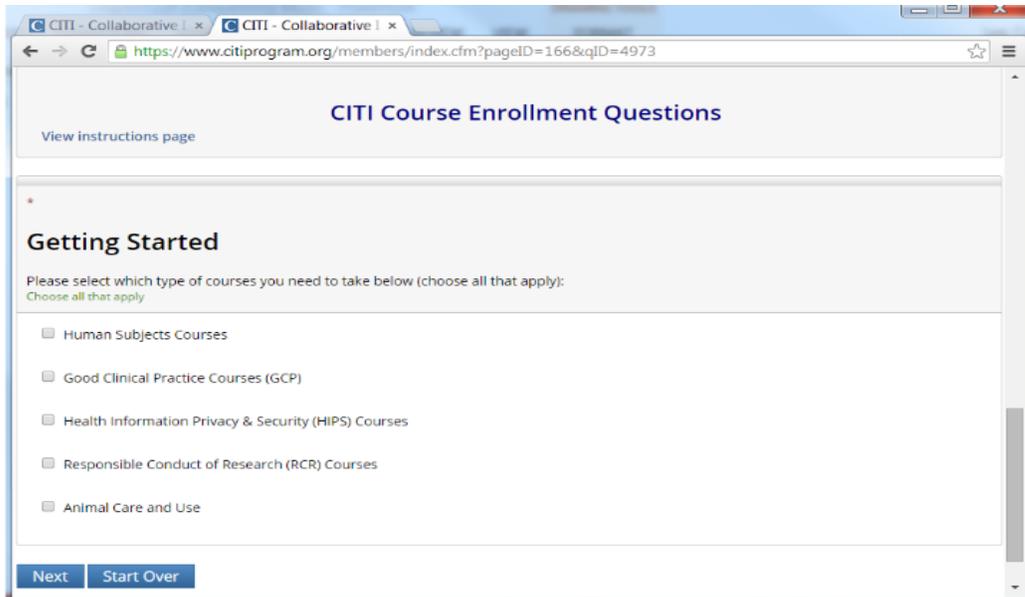
After successful registration, enter your Username and Password to Log In



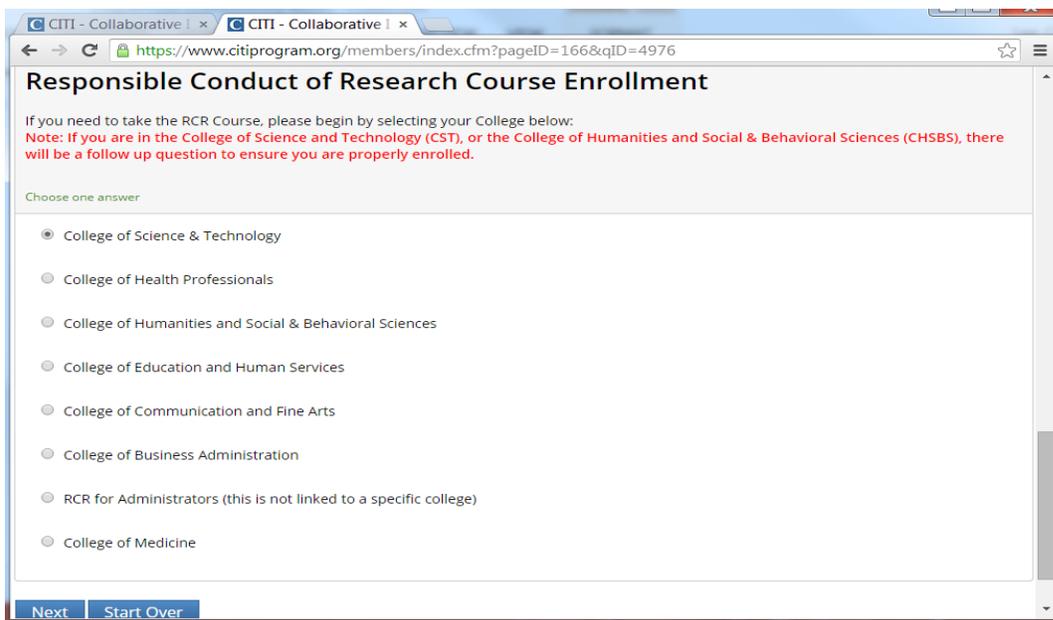
Click on 'Add a Course or Update Learner Groups', then, move the cursor down on the page to see the bottom part of the page.



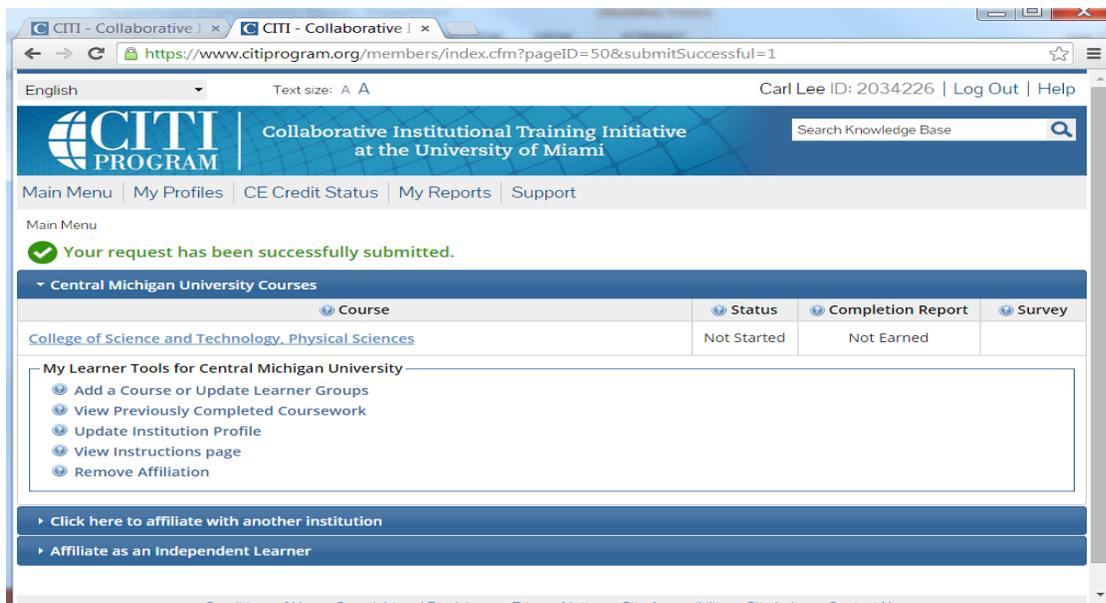
Click on Responsible Conduct Research (RCR) Courses, then, Next,
In the following page, move the cursor down to the bottom of the page to select the College.



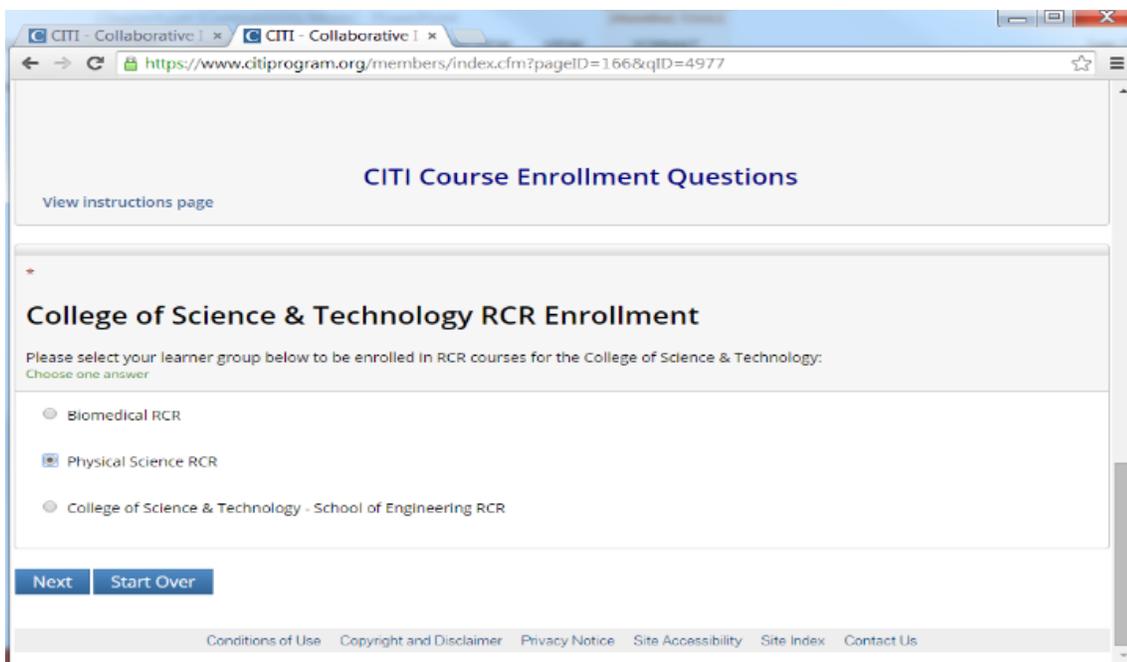
Choose College of Science & Technology,



Click Next to go to the next page. Move the cursor down to the bottom to see the following



Click on the course you just added: 'College of Science and Technology, Physical Science to begin your training.



Once completed, download your completion report and bring it to the STAD department secretary in Pearce 105 in order for the department to record your completion record. Please keep a copy of your completion report.

Appendix B: Graduate College Forms

The following forms can be found on the [Graduate Student Forms](#) webpage:

Thesis/dissertation forms

- Dissertation/Doctoral Project Completion Sign-Off (DocuSign and Preview forms)
- Plan A Completion Sign-Off (DocuSign and Preview forms)
- Prospectus (DocuSign and Preview forms)
- Outstanding Graduate Project Award
 - Nomination Guidelines
 - Nomination Form (DocuSign and Preview forms)
- Typist List
- Guidelines for the Preparation of Theses, Dissertations, Book(s) and Journal Article(s)

Student Grants

The 2022-2023 guidelines and application forms are available for the following graduate students:

- Graduate Assistant (GA) Conference Grant
 - Applications must be approved before the conference
- Presentation Grant
 - Semester-Specific Application Deadlines:
 - Fall Events (September-December) Deadline: October 10, 2022
 - Spring Events (January-April) Deadline: March 6, 2023
 - Summer Events (May-August) Deadline: June 26, 2023
- Research & Creative Endeavors Grant
 - Semester Deadlines:
 - Fall: October 17, 2022
 - Spring: February 20, 2023

Other forms

- Academic Load Policy Exception (DocuSign and Preview forms)
- Bulletin
- Course Repeat Exception (DocuSign and Preview forms)
- Credit by Exam (DocuSign and Preview forms)
- Extension of Time Request (DocuSign and Preview forms)
- Graduate Assistant (GA) Training
- Graduation Application
- Graduate Transfer Credit – *Procedures for Graduate Transfer Credit*
- Leave of Absence
- Michigan Intercollegiate Graduate Studies (MIGS) Program
- Re-computation of Grade Point Average (DocuSign and Preview forms)

Appendix C: Course Waiver Form

CENTRAL MICHIGAN UNIVERSITY
Department of Statistics, Actuarial and Data Sciences
Course Requirement Waiver Form

NAME _____ Student # _____

Any course requirement to be waived must be discussed with and approved by the graduate student's academic advisor prior to being submitted to the Graduate Coordinator. If the course content is not in the specialized area of the student's academic advisor, the advisor should consult with a content area faculty to ensure the two courses are comparable.

STATE WHICH CMU COURSE YOU WOULD LIKE TO HAVE WAIVED:

STATE THE EQUIVALENT COURSE YOU HAVE TAKEN AND AT WHAT UNIVERSITY YOU TOOK THIS COURSE:

Attach the course description and the syllabus of the course you took.

Student's Signature

Date

Advisor's Comments:

Advisor's Signature

Date

Graduate Committee's Comments:

Graduate Coordinator's Signature

Date

Appendix D: Graduate Student Advising Worksheets, Department of Statistics, Actuarial and Data Sciences

<p>This Advising Course Work Planning Worksheet must be filled out by each student and reviewed by the student's Advisor once a year. The planning of course work must be at least one year ahead of the review semester.</p> <p>For students who plan to submit the GA Renewal Application Form for the next academic year, this form must be reviewed by the student's Academic Advisor prior to submitting the GA Renewal Application Form early in the Spring semester.</p>													
Degree Pursuing (Highlight by color)	Ph.D. in Statistics and Analytics				M.S. in Applied Statistics and Analytics				Graduate Certificate in Data Mining			Graduate Certificate in Actuarial Science	
Student Name					Degree (Start BA/MA/MS)							Start Date	
Academic Semester/Year													
Advisor Name													
Advisor Signature													
Prospectus Filed (YES/NO)													
RCR Completed (YES/NO)													
Academic Status Change if any													
Qualifying Exam Fail/Pass													
Internship (Teach/Industrial)													
Supervisor of Internship													
GA support (RA, TA)													
Advisor Reviewed the Worksheet (YES/NO)													
Qualifying Exam Deadlines:	Must Pass at least one exam by:				Must Pass both exams by:								

Pick one of the following forms according to your program of study.

Worksheets for each program can be found at:

Ph.D. in Statistics and Analytics (45 - 75 hours) for Bulletin 2019-2020 and after

Course	Semester/ Year	Grade										
Core Courses (30 hours)												
STA 575												
STA 582												
STA 584												
STA 590												
STA 591												
STA 675												
STA 682												
STA 684												
STA 686												
STA 691												
Core Courses (18 hours)												
STA 580												
STA 588												
STA 589												
STA 678												
STA 694												
STA 696												
STA 697												
STA 782												
STA 784												
STA 785												
STA 797												

Electives Courses (12 hours)												
Internship (3 hours)												
STA 794												
STA 795												
Dissertation (12 hours)												
STA 898												

MS in Applied Statistics and Analytics (30-33 hours) for Bulletin 2019-20 and after

Course	Semester/ Year	Grade								
Required Prerequisite Courses (0-3 hours)										
STA 580										
Required Courses I (15 hours)										
STA 575										
STA 581										
STA 591										
STA 675										
STA 686										
Required Courses II (9 hours): Applied Statistics Track										
STA 582										
STA 590										
STA 678										
Required Courses II (9 hours): Analytics Track										
ITC 510										
ITC 686										
STA 691										
Elective Courses (3 hours): Students may select elective course work from a variety of options in Statistics, Computer Science, Mathematics, Geographic Information Systems, and disciplines in Business, Health Professions, and other areas.										
Practicum Requirement (3 hours)										
STA 695										
STA 698										

MS in Applied Statistics and Analytics (30-33 hours) for Bulletin 2022-23 and after

Course	Semester/ Year	Grade								
Required Prerequisite Courses (0-3 hours)										
STA 580										
Required Courses (15 hours)										
STA 575										
STA 581										
STA 591										
STA 675										
STA 691										
Required Electives (9 hours)										
ITC 630										
ITC 686										
STA 678										
STA 686										
STA 694										
Elective Course (3 hours): Students may select elective course work from a variety of options in Statistics, Computer Science, Mathematics, Geographic Information Systems, and disciplines in Business, Health Professions, and other areas.										
Practicum Requirement (3 hours)										
STA 695										
STA 698										

Graduate Certificate in Data Mining (15 - 18 hours) for Bulletin 2019-20 and after

Course	Semester/ Year	Grade	Semester/ Year	Grade	Semester/ Year	Grade	Semester/ Year	Grade
Required Courses (15 - 18 hours)								
GEO 501 (or GEO 503)								
STA 575 (or ITC 510)								
STA 580								
STA 591								
STA 675 (or ITC 686)								
STA 691								
Electives (0 - 6 hours)								
GEO 512								
ITC 510								
ITC 686								
STA 582								
STA 583								
STA 587								
STA 589								
STA 590								

Graduate Certificate in Actuarial Science (15 - 16 hours) for Bulletin 2019-20 and after

Course	Semester/ Year	Grade	Semester/ Year	Grade	Semester/ Year	Grade	Semester/ Year	Grade
Required Courses (6 – 7 hours): Choose at least two Exam Prep Courses								
ACT 539								
ACT 540								
ACT 541								
ACT 542								
ACT 543								
Elective Courses (9 hours) Select 9 hours from the following:								
*ECO 532								
*ECO 616								
*ECO 620								
*STA 580								
STA 589								
STA 575								
STA 584								
STA 590								
STA 591								

*: Validation by Education Experience (VEE) courses: ECO 532, 616, 620; STA 580, 589