The University Of Toledo

Existing Graduate Course Modification Form

* denotes required fields

Contact Person*: | Don White | Phone: | 530-4502 | (xxx - xxxx)   Email:
donald.white@utoledo.edu

Present	**Proposed**
Supply all information asked for in this column.(Supply core, research intensive and transfer module info if applicable)	Fill in appropriate blanks only where entry differs from first column.

College*: | College Nat Sci and Mathematics ▼ | **College**: | College Nat Sci and Mathematics ▼

Dept/Academic Unit*: | Mathematics & Statistics ▼ | **Dept/Academic Unit**: | Mathematics & Statistics ▼

Course Alpha/Numeric*: | MATH | - 7610 | **Course Alpha/Numeric**: | MATH | - 7610

Course Title:
| Applications of Statistics II |

Course Title:
| Advanced Statistical Methods II |

Credit hours: Fixed: | 3 | or Variable: | | to | |

Credit Hours: Fixed: | 3 | or Variable: | | to | |

CrossListings:
| |

CrossListings:
| MATH 4610 MATH 5610 |

| | Insert | | | Insert |

To add a course, type in course ID and click the Insert button.

To remove a course, select the course on left and click the Remove button.

| Remove |

To add a course, type in course ID and click the Insert button.

To remove a course, select the course on left and click the Remove button.

| Remove |

Prerequisite(s)(if longer than 50 characters, please place it in Catalog Description):

| MATH 5600 FOR LEVEL GR WITH MIN. GRADE OF D- |

Prerequisite(s)(if longer than 50 characters, please place it in Catalog Description):

| MATH 5600 FOR LEVEL GR WITH MIN. GRADE OF C- |

Corequisite(s)(if longer than 50 characters, please place it in Catalog Description):

| |

Corequisite(s)(if longer than 50 characters, please place it in Catalog Description):

| |

Catalog Description (*only if changed*) 75 words max: **Catalog Description** (*only if changed*) 75 words max:

Continuation of Applications of Statistics I

Statistical/biostatistical concepts and methods. Broad subject categories that may be included are study design, longitudinal data analysis, survival analysis, logistic regression, random and mixed effects models and Bayesian Statistics. Other topics applicable to current statistical consulting projects, or related to modern data analytics, may be introduced. Appropriate statistical software will be employed.

Has course content changed?

⦿ Yes   ◯ No

If course content is changed, give a brief topical outline of the revised course below(less than 200 words)

The ultimate goal of this course is to provide a foundation for the material typically seen when engaged in statistical consulting, particularly at an institution with a strong biomedical research component. Applications to engineering and business data analytics are also prevalent.

Proposed effective term*: 201640   (e.g. 201140 for 2011 Fall)

File Type	View File
Syllabus	View

List any course or courses to be deleted.

Effective Date: [   ] 📅

Effective Date: [   ] 📅

Comments/Notes:

The content of the old versions: Applications of Statistics I and II is being upgraded, updated, and rearranged to better fit current programmatic needs. This course modification was undertaken in conjunction with the revision of our Master's of Science in Statistics concentration. The prerequesite grade requirement change follows the change currently under consideration through the course amnesty for all courses in Mathematics and Statistics.

Revised by Don White 4/4/16

Graduate Council 10/18/2016 This proposal was reviewed based on the course modification only with no consideration of cross-listing status.

Rationale:

> The refocused purpose of this course is to provide the students with a broad foundation in statistical methods useful for statistical consulting and statistical work in other contexts. From that foundation, the student will be ready to off er statistical assistance as an expert for medium level tasks. The prerequesite grade requirement change follows the change currently under consideration through the course amnesty for all courses in Mathematics and Statistics.

Approval:

		Date	
Department Curriculum Authority:	Trieu Le	Date	2016/03/22
Department Chairperson:	Donald B. White	Date	2016/03/22
College Curriculum Authority or Chair:	Michael Cushing	Date	2016/04/19
College Dean:	Karen Bjorkman	Date	2016/04/19
Graduate Council:	Constance Schall (GC 10.18.2016)	Date	2016/10/18
Dean of Graduate Studies:	Amanda Bryant-Friedrich	Date	2016/10/26
Office of the Provost :	Marcia King-Blandford	Date	2016/10/27

print

Administrative Use Only

Effective Date: 2017/01/22   (YYYY/MM/DD)

CIP Code:

Subsidy Taxonomy: doctoral

Program Code:

Instructional Level:

Registrar's Office Use Only

Processed in Banner on: 2016/11/01

Processed in Banner by: Tasha Woodson

Banner Subject Code: MATH

Banner Course Number: 7610

Banner Term Code: 201640

Banner Course Title: Advanced Statistical Methods II

Advanced Statistical Methods II

The University of Toledo
Mathematics and Statistics
MATH 4/5/7610
3 credit hours

Instructor:	**Term:**
Office Hours:	**Class Location/Times:**
Office Location:	
Office Phone:	**Course Website:**
Email:	

COURSE/CATALOG DESCRIPTION - MATH 4610
Statistical/biostatistical concepts and methods. Broad subject categories that may be included are study design, longitudinal data analysis, survival analysis, and logistic regression. Other topics applicable to current statistical consulting projects, or related to modern data analytics, may be introduced. Appropriate statistical software will be employed.

COURSE/CATALOG DESCRIPTION - MATH 5610 (add random and mixed effects models)
Statistical/biostatistical concepts and methods. Broad subject categories that may be included are study design, longitudinal data analysis, survival analysis, logistic regression, and random and mixed effects models. Other topics applicable to current statistical consulting projects, or related to modern data analytics, may be introduced. Appropriate statistical software will be employed.

COURSE/CATALOG DESCRIPTION - MATH 7610 (add Bayesian Statistics)
Statistical/biostatistical concepts and methods. Broad subject categories that may be included are study design, longitudinal data analysis, survival analysis, logistic regression, random and mixed effects models and Bayesian Statistics. Other topics applicable to current statistical consulting projects, or related to modern data analytics, may be introduced. Appropriate statistical software will be employed.

COURSE OVERVIEW
The ultimate goal of this course is to provide a foundation for the material typically seen when engaged in statistical consulting, particularly at an institution with a strong biomedical research component. Applications to engineering and business data analytics are also prevalent.

STUDENT LEARNING OUTCOMES
Students will learn how to …
   A) Design complex statistical studies, especially experiments and observational studies
   B) Analyze data with multiple, possibly longitudinal measures
   C) Perform analyses of lifetime or time to event data
   D) Model outcome likelihoods for categorical data
   E) Perform high level linear modeling with multiple observations and possibly missing data
   F) Employ statistical software to perform statistical analyses
   G) Perform random and mixed effects models and correctly interpret the results (5/7610 only)
   H) Apply Bayesian Statistics and correctly interpret the results (7600 only)

PREREQUISITES: MATH 7600: Advanced Statistical Methods I

TEXTS AND MATERIALS: none required

TECHNOLOGY REQUIREMENTS

Browser Check Page
Students need to have access to a properly functioning computer throughout the semester. The Browser Check Page will enable you to perform a systems check on your browser, and to ensure that your browser settings are compatible with Blackboard, the course management system that hosts this course is:
http://www.utdl.edu/utlv/Bb9BrowserCheck/innovation/blackboard/browsercheck.html

Use of Public Computers
If using a public library or other public access computer, please check to ensure that you will have access for the length of time required to complete tasks and tests. A list and schedule for on-campus computer labs is available at http://www.utoledo.edu/it/CS/Lab_hours.html.

UT Virtual Labs
Traditionally, on-campus labs have offered students the use of computer hardware and software they might not otherwise have access to. With UT's Virtual Lab, students can access virtual machines loaded with all of the software they need to be successful at this course using nothing more than a broadband Internet connection and a web browser. The virtual lab is open 24/7 and 365 days a year at http://www.utoledo.edu/it/VLab/Index.html.

UNIVERSITY POLICES

The Americans with Disabilities Act (ADA) requires that reasonable accommodations be provided for students with physical, sensory, cognitive, systemic, learning, and psychiatric disabilities. In accordance with the ADA and university policy, if you have a documented disability and require accommodations to obtain equal access in this course; please contact the instructor at the beginning of the semester to discuss any necessary accommodations. Please contact the Student Disability Services Office .

ACADEMIC POLICES

Academic Policies for Undergraduate Students
As a student in my course and enrolled at The University of Toledo you should be familiar with the policies that govern the institution's academic processes, for example, Academic Dishonesty, Enrollment Status, and Grades and Grading. Please read Undergraduate Academic Policies.

Missed Class Policy
Students are expected to attend every class meeting of courses in which they are registered. Please read the Missed Class Policy.

COURSE EXPECTIAONS
Examinations must be taken as scheduled on this syllabus and as announced in class. Exceptions will absences, only be made in extenuating circumstances and at the discretion of the instructor. Make-up exams will differ from those given in class, but will cover the same material. Assignments and projects must be turned in by the due dates. Penalties will accrue for late submissions.

GRADING POLICIES
Student work will be assessed as follows. Specific guidelines, grading criteria, and a timeframe for grades and feedback will vary with instructors and terms:

	Final Grade
Assignments	
Projects	
Exams	
Total	

Students are expected to complete and submit all assignments by the due date listed in the Course Schedule. Make-up tests will not be permitted unless arrangements are discussed and approved well before the required due date. Ask questions as soon as possible by email if you do not understand an assignment.

ASSIGNMENTS

PROJECTS

EXAMS

COMMUNICATION GUIDELINES

Email:
Students are expected to check their UT email account frequently for important course information. This class is being taught for you, so if you are having trouble understanding any aspect of it, please let me know. I am here to help, and will do my best to respond to email within 24 to 48 hours.

TECHNICAL SUPPORT

If you encounter technical difficulties with Blackboard, please contact the UT Online Help Desk at (419) 530-8835 or utdl@utoledo.edu. The Help Desk offers extended hours in the evenings and on weekends to assist students with technical problems. When calling after hours, leave a detailed message, including your Rocket Number and phone number, and an Online Learning staff member will respond on the next business day. The UT Online Help Desk website is available at: http://www.utoledo.edu/dl/helpdesk/index.html

Technical questions related to on-campus Internet access, virtual labs, hardware, software, personal website hosting, and UTAD account management can be directed to UT's IT Help Desk at (419) 530-2400 or ithelpdesk@utoledo.edu. The IT Help Desk website is available at http://www.utoledo.edu/it/CS/HelpDesk.html.

LEARNER SUPPORT
The University of Toledo offers a wide range of academic and student support services that can help you succeed:

eTutoring Services
The Ohio eTutoring Collaborative, in partnership with The University of Toledo, now provides online tutoring support for all UT students. eTutoring Services are offered in a wide array of subjects, including Writing, Math, Calculus, Statistics, Accounting, Biology, Chemistry, and Anatomy and Physiology.
Learn more at: https://www.etutoring.org/login.cfm?institutionid=232&returnPage

eLibrary Services Portal
The eLibrary is a customized gateway to UT Libraries for online students. It was designed to help you locate the best online library resources without leaving Blackboard.
Learn more at: http://www.utoledo.edu/dl/students/elibrary.html

Counseling Center
The Counseling Center is the university's primary facility for personal counseling, psychotherapy, and psychological outreach and consultation services. The Counseling Center staff provide counseling (individual and group), mental health and wellness programming, and crisis intervention services to help students cope with the demands of college and to facilitate the development of life adjustment strategies.
Learn more at: http://www.utoledo.edu/studentaffairs/counseling/

IMPORTANT DATES:
Last Day to **ADD/DROP** classes:
Last Day to **WITHDRAW** is:
*** Instructors cannot withdraw students from classes. It is the student's responsibility to withdraw from the course on or before the deadline listed above. If you fail to do so, then you will receive a letter grade for this class at the end of the semester.*

TOPICS

	Associated Learning Outcome
Statistical/biostatistical concepts and methods	A-H
Study designs	A
Longitudinal data analysis	B

Survival analysis	C
Logistic regression	D
Random and mixed effects models (5/7600 only)	E
Bayesian Statistics (7600 only)	H
Other topics applicable to current statistical consulting projects	A-H
Modern data analytics	F
Statistical software	F