



COURSE IMPLEMENTATION DATE: September 2002
 COURSE REVISED IMPLEMENTATION DATE: January 2013
 COURSE TO BE REVIEWED: June 2015
(six years after UEC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

STAT 488	SCIENCE/MATH & STATS	3
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS
Selected Topics in Statistics		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

This course is designed for students who wish to examine in greater depth a particular statistical technique or application. It will be offered either as an individual reading course or as a seminar, depending upon student and faculty interest. May not be repeated for additional credit.

Note: Students with credit for MATH 488 cannot take this course for further credit.

PREREQUISITES: At least three upper-level STAT courses, and at least one additional upper-level course labeled MATH or STAT. Certain programs of study may require more particular prerequisites. The written permission of the instructor is required.

COREQUISITES: None

PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

- (a) Replaces: MATH 488
- (b) Cross-listed with: _____
- (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 45

STRUCTURE OF HOURS:

Lectures: _____ Hrs
 Seminar: 45 Hrs
 Laboratory: _____ Hrs
 Field experience: _____ Hrs
 Student directed learning: _____ Hrs
 Other (specify): _____ Hrs

TRAINING DAY-BASED INSTRUCTION:

Length of course: _____
 Hours per day: _____

OTHER:

Maximum enrolment: 24

Expected frequency of course offerings: By student request and dept approval

(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No

WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

Course designer(s): Ali Fotouhi

Department Head: Greg Schlitt

Supporting area consultation

Curriculum Committee chair: Norm Taylor

Dean/Associate VP: Dan Ryan

Undergraduate Education Committee (UEC) approval

Date approved: March 5, 2012

Date of meeting: **March 30, 2012**

Date approved: **April 20, 2012**

Date approved: **May 4, 2012**

Date of meeting: **May 23, 2012**

LEARNING OUTCOMES:

Note: Learning objectives will vary with the course and the instructor. The following is a sample:
Upon successful completion of this course, students will be able to:

- Demonstrate familiarity with certain measures of disease occurrence and association that are commonly used in the epidemiologic literature;
- Understand the application of, and themselves apply, the classical methods of analysis of case-control studies, which include exact inference for a 2 x 2 table and the Cochran-Mantel-Haenszel test for multiple odds-ratios;
- Construct a design for a particular case-control study: e.g. sample size determination, stratification and use of matching factors;
- Apply modern computer intensive methods of analysis including multiple logistic regression and conditional logistic regression to case-control data.

METHODS: (Guest lecturers, presentations, online instruction, field trips, etc.)

Individual tutorials or small seminar groups; directed work on the computer.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Examination(s) Portfolio assessment Interview(s)

Other (specify): For this particular example of course content, a portfolio demonstrating extensive practical experience in university or governmental epidemiological research, analyzing retrospective data by methods including logistic and conditional logistic models.

TEXTBOOKS, REFERENCES, MATERIALS: [Textbook selection varies by instructor. Examples for this course might be:]

The texts are chosen by a departmental curriculum committee.

Breslow, N.E. and Day, N.E. *Statistical Methods in Cancer Research, Volume 1 – The Analysis of Case-Control Studies*. International Agency for Research on Cancer, WHO.

Cox, D.R. *Analysis of Binary Data*. Chapman & Hall.

Fienberg, S.E. *The Analysis of Cross-Classified Categorical Data*. MIT Press.

STUDENT EVALUATION: [An example of student evaluation for this course might be:]

Assignments	20%
Projects	20%
Midterm examinations	20%
Final examination	40%

Students must achieve at least 40% on the final exam in order to receive credit for this course.

COURSE CONTENT: [Course content varies by instructor. An example of course content might be:]

This particular course content description assumes that the student has covered the content of STAT 402.

- Role of the case-control (retrospective) study in epidemiology.
- Fundamental measures of disease occurrence and association; point prevalence, incidence, rates, age- and time-specific incidence rates, the force of mortality, birth-cohorts, cumulative incidence rates; models of disease association, relative risk, odds ratio, invariance of odds-ratio from retrospective or prospective studies; attributable risk.
- Design considerations for the applicability of case-control studies; bias, confounding, causality; stratification, matching factors; interaction and effect modification.
- Classical methods of the analysis of categorical grouped data; exact inference for a single 2 x 2 table, approximations, test-based confidence intervals; several 2 x 2 tables – the Cochran-Mantel-Haenszel test; the 2 x K table.
- Classical methods of analysis of matched categorical data; dichotomous exposure – the odds-ratio as the ratio of the two types of discordant pairs; 1:M matching; varying numbers of controls; multiple exposure levels.
- Unconditional logistic regression for large strata; adaptation of the logistic model to case-control studies; the deviance.
- Conditional logistic regression for matched sets; bias arising from the use of unconditional logistic analysis; matched 1:M designs; combining sets of 2 x 2 tables; general methodology.