



ARIZONA STATE UNIVERSITY
GENERAL STUDIES COURSE PROPOSAL COVER FORM

Course information:

Copy and paste current course information from [Class Search/Course Catalog](#).

Academic Unit	College of Liberal Arts and Sciences	Department	School of Human Evolution and Social Change				
Subject	ASM	Number	465	Title	Quantification Analysis for Anthropologists	Units:	3
Is this a cross-listed course?	No						
If yes, please identify course(s)							
Is this a shared course?	(choose one)	If so, list all academic units offering this course					
Course description:							

Requested designation: (Choose One)

Note- a separate proposal is required for each designation requested

Eligibility:

Permanent numbered courses must have completed the university's review and approval process.
For the rules governing approval of omnibus courses, contact the General Studies Program Office at (480) 965-0739.

Area(s) proposed course will serve:

A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study.

Checklists for general studies designations:

Complete and attach the appropriate checklist

- [Literacy and Critical Inquiry core courses \(L\)](#)
- [Mathematics core courses \(MA\)](#)
- [Computer/statistics/quantitative applications core courses \(CS\)](#)
- [Humanities, Fine Arts and Design core courses \(HU\)](#)
- [Social and Behavioral Sciences core courses \(SB\)](#)
- [Natural Sciences core courses \(SQ/SG\)](#)
- [Global Awareness courses \(G\)](#)
- [Historical Awareness courses \(H\)](#)
- [Cultural Diversity in the United States courses \(C\)](#)

A complete proposal should include:

- ☒ Signed General Studies Program Course Proposal Cover Form
- ☒ Criteria Checklist for the area
- ☒ Course Syllabus
- ☒ Table of Contents from the textbook, and/or lists of course materials

Contact information:

Name	Melissa Beresford	Phone	480-965-9649
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Department Chair/Director approval: *(Required)*

Chair/Director name (Typed):	Alexandra Brewis Slade	Date:	9/13/2013
Chair/Director (Signature):			

Arizona State University Criteria Checklist for

MATHEMATICAL STUDIES [CS]

Rationale and Objectives

The **Mathematical Studies** requirement is intended to ensure that students have skill in basic mathematics, can use mathematical analysis in their chosen fields, and can understand how computers can make mathematical analysis more powerful and efficient. The **Mathematical Studies** requirement is completed by satisfying both the **Mathematics [MA]** requirement and the **Computer/Statistics/Quantitative Applications [CS]** requirement explained below.

The **Mathematics [MA]** requirement, which ensures the acquisition of essential skill in basic mathematics, requires the student to complete a course in College Mathematics, College Algebra, or Precalculus, or demonstrate a higher level of skill by completing a mathematics course for which any of the first three courses in a prerequisite.

The **Computer/Statistics/Quantitative Applications [CS]** requirement, which ensures skill in real world problem solving and analysis, requires the student to complete a course that uses some combination of computers, statistics, and mathematics.

Approved: Feb. 2000

Proposer: Please complete the following section and attach appropriate documentation.

ASU--[CS] CRITERIA			
A COMPUTER/STATISTICS/QUANTITATIVE APPLICATIONS [CS] COURSE MUST SATISFY ONE OF THE FOLLOWING CRITERIA: 1, 2, OR 3			
YES	NO		Identify Documentation Submitted
		1. Computer applications*: courses must satisfy both a and b :	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	a. Course involves the use of computer programming languages or software programs for quantitative analysis, modeling, simulation, animation, or statistics.	
		b. Course requires students to analyze and implement procedures that are applicable to at least one of the following problem domains (check those applicable):	
<input type="checkbox"/>	<input type="checkbox"/>	i. Spreadsheet analysis, systems analysis and design, and decision support systems.	
<input type="checkbox"/>	<input type="checkbox"/>	ii. Graphic/artistic design using computers.	
<input type="checkbox"/>	<input type="checkbox"/>	iii. Music design using computer software.	
<input type="checkbox"/>	<input type="checkbox"/>	iv. Modeling, making extensive use of computer simulation.	
<input type="checkbox"/>	<input type="checkbox"/>	v. Statistics studies stressing the use of computer software.	
<p>*The computer applications requirement cannot be satisfied by a course, the content of which is restricted primarily to word processing or report preparation skills; learning a computer language or a computer software package; or the study of the social impact of computers. Courses that emphasize the use of a computer software package or the learning of a computer programming language are acceptable, provided that students are required to understand, at an appropriate level, the theoretical principles embodied in the operation of the software and are required to construct, test, and implement procedures that use the software to accomplish tasks in the applicable problem domains.</p>			
		2. Statistical applications: courses must satisfy both a and b .	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Course has a minimum mathematical prerequisite of College Mathematics, College Algebra, or Precalculus, or a course already approved as satisfying the MA requirement.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	b. The course must be focused principally on developing knowledge in statistical inference and include coverage of all of the following:	"

ASU--[CS] CRITERIA

YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	i. Design of a statistical study.	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	ii. Summarization and interpretation of data.	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	iii. Methods of sampling.	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	iv. Standard probability models.	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	v. Statistical estimation	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	vi. Hypothesis testing.	\\
<input checked="" type="checkbox"/>	<input type="checkbox"/>	vii. Regression or correlation analysis.	\\
3. Quantitative applications: courses must satisfy both a and b .			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	a. Course has a minimum mathematical prerequisite of College Mathematics, College Algebra, or Precalculus, or a course already approved as satisfying the MA requirement.	
		b. The course must be focused principally on the use of mathematical models in quantitative analysis and decision making. Examples of such models are:	
<input type="checkbox"/>	<input type="checkbox"/>	i. Linear programming.	
<input type="checkbox"/>	<input type="checkbox"/>	ii. Goal programming.	
<input type="checkbox"/>	<input type="checkbox"/>	iii. Integer programming.	

ASU--[CS] CRITERIA			
YES	NO		Identify Documentation Submitted
<input type="checkbox"/>	<input checked="" type="checkbox"/>	iv. Inventory models.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	v. Decision theory.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	vi. Simulation and Monte Carlo methods.	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	vii. Other (explanation must be attached)	

Course Prefix	Number	Title	Designation
ASM	465	Quantification & Analysis for Anthropologists	CS

Explain in detail which student activities correspond to the **specific** designation criteria.

Please use the following organizer to explain how the criteria are being met.

Criteria (from checksheet)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
2a	pre-req = MAT 119 or higher	See green highlight in syllabus
2b i - vii	Course focuses principally on developing knowledge in statistical inference	see yellow highlight in syllabus

ASM 465 – Quantification and Analyses for Anthropologists

David R. Abbott

Spring, 2011

General Information

Class meets: Monday and Wednesday 3:00-4:15, Language and Literature Rm. 230

Abbott's ph/mail: 480-965-6452, david.abbott@asu.edu

Abbott's office hours: SHESC Rm. 358, Thursday 1:30-4:30, or by appointment

Prerequisite: MAT 119 or higher

Course Description

This course will use an intuitive approach to introduce students to quantitative analysis in anthropology. The fundamentals of descriptive and inferential statistics will be covered with examples drawn from the anthropological literature.

Course Procedures

Each student is responsible for the material covered in lecture and for assigned readings (to be read before each class period). Readings come from the required textbook and are listed on the course schedule. Homework exercises will be assigned on a regular basis but will not be collected or graded. Students are encouraged to work collaboratively on the homework exercises. Time will be allotted for questions on the homework at the beginning of each class period.

Please bring your textbook and hand calculator to each class and exam.

Regarding Missed Exams: Few excuses are acceptable for missing an exam, and *permission must be obtained from me prior to the listed exam date to be considered for taking a make-up exam.* No make-up is allowed for the final exam.

I take issues related to academic honesty very seriously. Acts of academic dishonesty (i.e., cheating on exams and quizzes) on the part of any student will result in failure of the course.

Grades will be assigned on the basis of three equally weighted exams (25% each) and the average of in-class quizzes (25%).

Exams: The exams are non-cumulative (although topics later in the course will build on the material covered earlier in the course). Each exam will follow one day of in-class review. **All exams are open book.** Computers and cell phones may not be used during exams. *Final Exam Date and Time:* May 11, 12:10-2:00.

Quizzes: All quizzes are regularly scheduled (see the course schedule) and are taken immediately following the questions section at the beginning of the class period. **All quizzes are open book.** Computers or cell phones may not be used during quizzes. To derive the average of the quizzes, two missed quizzes will be dropped first. If one quiz was missed then the lowest grade will also be dropped. If no quizzes were missed, the lowest two grades will be dropped. **There are no make-ups for quizzes.**

Required Materials

Textbook: *Statistics for the Social Sciences*, third edition, 2006. R. Mark Sirkin.
Sage Publications, Thousand Oaks, CA.

Hand Calculator: Any model will do that offers a square root function.

Student Standards

Students are required to read and act in accordance with university and Arizona Board of Regents policies, including:

The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308:
http://www.abor.asu.edu/1_the_regents/policymanual/chap5/5Section_C.pdf

Student Support and Disability Accommodations

ASU offers support services through Counseling (<http://students.asu.edu/counseling>), the Learning Resources Center (www.asu.edu/lrc), and the Disability Resource Center (<http://www.asu.edu/studentaffairs/ed/drc/>). If you are a student in need of special arrangements, we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services.

Grade Appeals

ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see <http://catalog.asu.edu/appeal>.

Schedule of Topics, Exams, Quizzes, and Homework

1. Introduction – Design of Statistical Study

Homework: Read Chapters 1 and 2; skip “Likert Scales” on pp. 43-45.

2. Scales of Measurement, Frequency Distributions, Graphs – How to interpret statistical data

Homework: Read Chapter 4; Exercise 2.2.

3. Descriptive Statistics, Box Plots

Homework: Read Chapter 5; Exercises 4.1, 4.2, 4.4, 4.5, 4.6, 4.14.

4. QUIZ 1

Methods of Sampling – Random sampling and non-random sampling

Homework: Exercise 5.2 (exclude part 4, use raw data – don’t tabulate)

5A. Probability

Homework: Worksheet handed out in class (problems 1-12).

5B. QUIZ 2

Permutations and Combinations

Homework: Continue with worksheet (problems 13-14).

6. Discrete Random Variables, Multiple Trials, Probability Distributions, Binomial Distribution

Homework: Read Chapter 8, pages 225-234 only. Worksheet

7. Statistical Estimation - More Binomial, Normal Distribution, Z-scores

Homework: Exercise 8.1. Worksheet – Review Exercises

8. QUIZ 3

Review for Exam 1

9. EXAM 1

Homework: Read Chapter 7.

10. Tests of Significance/Hypothesis Testing

Homework: Read Chapter 8, pages 234-246 only.

11. Central Limit Theorem, Normality Assumption, Estimate of a Proportion

Homework: pp. 254-257 on Interval Estimation.

12. Confidence Intervals

Homework: Finish reading Chapter 8 except pp. 246-256 (will include a mix of material we have already discussed and new material on hypothesis testing); Exercises 8.6 (questions 1 and 2 only), 8.7 (question 1 only), 8.8 (questions 1-6 only).

13. QUIZ 4

Testing a Mean and a Proportion, Directional Hypotheses

Homework: Read pp. 246-256 (t-test); Exercise handed out in class.

14. One-sample t-test

Homework: Exercises 8.2 (questions 1-3) and 8.6 (questions 3, 4).

15. Difference of Means and Difference of Proportions: Tests and Confidence Intervals,

Homework: Read Chapter 9, pp. 271-288; 303-310 only; Exercise handed out in class.

16. QUIZ 5

Difference of Means: t-test

Homework: Read Chapter 10, pp. 317-343 only; Exercises: 9.1 and 9.3.

17. Analysis of Variance (ANOVA)

Homework: Read: pp. 150-164, 408-411; Exercises: 10.3, 10.5.

18. QUIZ 6 (ANOVA – Take Home)

Review for Exam 2

19. EXAM 2

Homework: Read pp. 359-366, 398-408, 412-421

20. Non-parametric Tests: Chi-square Goodness of Fit Test

Homework: Exercise handed out in class.

21. QUIZ 7

Contingency Table Analysis: Chi-square Test of Independence

Homework: Exercise handed out in class.

22. Contingency Table Analysis: Two-step Process, Measuring the Strength of Association

Homework: Exercises 12.1 (do χ^2 and Cramer's V only), 12.3 (do χ^2 and Cramer's V only), problems handed out in class.

23. QUIZ 8

Mann-Whitney-Wilcoxon Test of Two Medians

Homework: Exercise handed out in class.

24. Correlation and Regression

Homework: Exercise 13.1, 13.2, 13.4.

25. Review for Final Exam

26. FINAL EXAM