UNIVERSITY OF KENTUCKY

New Course Report

2/1/2017 10:42:50 AM

1. General Information

1a. Submitted by the College of: ARTS &SCIENCES

Date Submitted: 1/25/2017

1b. Department/Division: Anthropology

1c. Contact Person

Name: Carmen Martinez Novo

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Phone: 7-2684

Responsible Faculty ID (if different from Contact)

Name: Scott Hutson

Email: scotthutson@uky.edu

Phone: 7-9642

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? Yes

Statistical Inferential Reasoning

2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: ANT 360

2c. Full Title: Statistics in Anthropology

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: Students learn how to use probability and quantitative data to test hypotheses in anthropology. Due to common characteristics of anthropological data sets, this class emphasizes methods appropriate for handling small sample sizes and nominal and ordinal scale variables. The course also covers descriptive statistics, sampling, spatial analysis, confidence intervals, and the creation of charts and tables. Since the class focuses more on core concepts than mechanical computation, lessons learned in the context of anthropological questions can be applied to everyday decisions.

2k. Prerequisites, if any: Any Quantitative Foundations course

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Spring,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 30

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: While this class should be most relevant to anthropology majors, I expect enrollment from other social science majors seeking to satisfy their statistical inferential reasoning UKCore requirement.

8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: No

If YES, list affected programs:

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

Course Review Form
Statistical Inferential Reasoning

Reviewer Recommendation

Accept ☐ Revisions Needed ☐

Course: ANT 360: statistics in anthropology

Using the course syllabus as a reference, identify when and how the following learning outcomes are addressed in the course. Since learning outcomes will likely be addressed multiple ways within the same syllabus, please identify a representative example (or examples) for each outcome.

☐ Evidence of course activities that will enable students to evaluate common claims arising from the formal statistical inference conveyed through margins of error and confidence intervals; and to articulate the sense in which margins of error and confidence intervals address and quantify risks that are of practical interest.

Date(s)/location(s) on syllabus or assignment:
Before anything else, let me stress that the anthropology department will offer this course to 30 students (mostly majors) once every year (at most). So the department's goal is NOT to increase enrollment in anthropology at the expense of enrollment in statistics classes. Instead, the goal is enrich the anthropology major by giving students quantitative training commensurate with the UKCore requirement while using anthropological material. We expect a few social science majors in other departments to enroll in this class as well.

The course addresses confidence intervals many times throughout the semester. I have listed them below:

--We introduce the concept of confidence intervals in week 4 when discussing standard deviations. The example that brings up risk here is radiocarbon dating as used by archaeologists. To make a long story short, a radiocarbon date represents a mean amount of time that has elapsed since a living being (usually a tree, as represented by charcoal) died. Radiocarbon dates are reported with 2 sigma ranges, and so we have a class exercise in which students learn that a date of 1200 BCE +/- 90 means that there is a 95.4% chance that the actual date falls between 1290 and 1110 BCE

--We continue to stress confidence intervals and margin of error in the discussion of z scores and hypothesis testing in weeks 6 and 7. In-class exercise #2 and problem set 5 require students to compute 95% confidence intervals around means.

--The notion of risk in the sense of the risk of committing type 1 versus type 2 errors is also addressed when we talk about setting a high or low alpha as part of hypothesis testing in week 7.

--The class returns to confidence intervals when we discuss regression in week 12: in problem set 7 students must provide the 95% confidence intervals around an estimate for y, given x and the least-squares linear regression equation.

Brief Description:
As mentioned above, risk and confidence intervals are a central aspect of this class since I teach the students that probability is at the core of inferential statistics. A huge goal of the class is to get our majors, to learn formal hypothesis testing. So I stress to the students that whether they accept or reject a hypothesis depends on the alpha level that they choose, and so when we discuss what kind of alpha they feel comfortable with for particular kinds of questions (0.05, 0.01, etc.), they recognize that they cannot be 100% confident that the data reject a hypothesis.

☐ Evidence of course activities that will enable students to evaluate common claims arising from the formal statistical inference conveyed through null hypothesis testing within statistically designed experiments, and to articulate the sense in which null hypothesis testing addresses and quantifies risks that are of practical interest.

Date(s)/location(s) on syllabus or assignment:

The Class introduces the concept of the null hypothesis in Week 7 and for every inferential statistic thereafter (Student's t, chi square, F test within Analysis of Variance, Mann-whitney U, etc.), we set up a research question with a null hypothesis and an alternative hypothesis. So, students work with null hypotheses in weeks 7, 8, 9, 10, 12, 13, and 14, in problem sets 5, 6, 7, and 8, in class exercises 3 and 4, and in the final exam.

Brief Description:
In this class, hypothesis testing is central (we don't do much exploratory data analysis). So, with every statistical test, I have the students set up a null hypothesis and an alternative hypothesis.

☐ Evidence of course activities that will enable students to evaluate common claims that arise from statistical constructs, like charts and graphs, tables and numerical summaries, through the informal act of human inference; and to articulate some of the associated challenges (e.g. with conditional reasoning, hidden variables, confounding, association versus correlation, not having the right information, misinterpreting randomness).

Date(s)/location(s) on syllabus or assignment:
We cover charts and graphs on weeks 1, 2, and 3, followed up by problem sets 1 and 2. During these weeks students read a portion of "How to Lie with Statistics", which teaches them very clearly how certain presentations of data can be manipulated/distorted to support a claim.

During weeks 11 and 12 the students learn bivariate regression and correlation and I make it very clear to them that a regression line can be created to pass through any cloud of points on a scatterplot, regardless of whether there is a strong coefficient of determination. They also learn several other ways that regression lines can mischaracterize relationships in the data.

Regarding association versus correlation, weeks 12 and 13 cover the point that correlation is not causation. During these weeks we are also careful to distinguish bewteen parametric and non-parametric correlation coefficients so that students understand that even though two ordinal variables may not be said to have a "linear" corerlation, they can still be strongly associated.

If "hidden variables" refers to variables that are strongly correlated with other variables but are not included in the analysis, we cover hidden variables by going over partial correlation in week 13: the students learn that two variables can be strongly correlated when in fact there is only indirect causation between them (for example, height and size of vocabulary among children are strongly correlated but a third variable, age, which may not be included in the analysis (and is therefore "hidden"), actually underlies (or causes) these other correlations).

[See problem sets 7 and 8, and in class exercise 4]

Brief Description:
Please see the descriptions directly above

☐ Topic distribution includes estimation (at least 25%), statistical testing (at least 25%), describing data (at least 20%), and information literacy (at least 5%).

Date(s)/location(s) on syllabus or assignment:
Testing: Weeks 7, 8, 9, 10, and 13; Problem sets 5, 6, 7, and 8; in-class exercise 3,
Describing data: Weeks 1, 2, 3, 4, 11, and 12; Problem sets 1 and 2, in-class exercise 1
Estimation: Weeks 11 and 12; Problem set 7, in class exercise 4.
Information Literacy: The Huff and Geis reading at the beginning of the semester gets explicitly at information literacy as does much of the other material

Brief Description:

The course contains estimation, statistical testing, describing data and information literacy. Statistical testing and describing data receive more attantion than estimation, while students' information literacy skills are engaged directly or indirectly nearly every week.

☐ Assessable artifact(s) are identified and focused on demonstrating that the use and worth of statistical inference is for making everyday decisions. The artifact(s) should be conceptually focused and not primarily focused on computations and derivations.

Date(s)/location(s) on syllabus or assignment:
The final exam, nearly all problem sets, nearly all in-class exercises, student projects and examples provided during lectures.

Brief Description:
A main goal of this class is to get our anthropology majors to be able to think quantitatively about anthropology. So, nearly all the questions I ask them are about solving a problem, as opposed to merely adding values to a formula and computing the result. Since these are real world problems (such as "In a particular village, how likely is it to get 17 males in 20 births just by chance? Is this likelihood small enough to suggest the female infanticide be occurring?), they are indeed relevant to everyday questions. In building up to the births question (and other anthropological questions), I begin with even more everyday examples, such as flipping a coin, betting, etc.

☐ Sufficient evidence to suggest that the course is not confined to, or even largely focused on computation, but rather is designed to provide a conceptual understanding of statistical inferential reasoning (increasing student skill with computations is a perfectly acceptable by-product of the course). **This box must be checked by the reviewer for the submission to move forward**.

Date(s)/location(s) on syllabus or assignment:
The final exam, nearly all problem sets, nearly all in-class exercises, student projects and examples provided during lectures.

Brief Description:
Making the class conceptually focused has been a major priority. For each of the quantitative anthropology questions that we wrestle with, one could say that there are two categories of procedures involved: conceptual procedures and computational procedures. At the core of the conceptual category is understanding what the question is asking, which can be broken down into smaller pieces like what are the variables, what are the data, what kinds of samples do the data come from, and what are you trying to show with the data. The second category of procedures involves doing the computations, calculating the probability of the outcome at hand, finding confidence limits, critical values, regions of rejection, etc. I try to make the most impact on the conceptual side because the concepts are not so easy to codify. On the other hand, the computational side is easier to codify. In fact, the textbook and each of my powerpoints carefully codify the formulas needed, the procedures for finding the critical values of whatever statistic we are using, the degrees of freedom involved, etc. So I think the conceptual side is what needs more emphasis. They can always consult the course materials (all powerpoints are on Canvas) for formulas, but the broader concepts will only stick if the students are constantly asked to put them into practice.

I have a few strategies for keeping a constant focus on the concepts. First in the problem sets, in-class exercises, student projects and final exam, I do not merely ask students to calculate something. Nearly all questions take the form of a real-life, anthropological scenario. I ask the students questions like "Is there a real difference in income between the farmers in the village and those who seek wage labor?" "Are older people in rural Mexico more likely to have facebook accounts than younger people?"

Second, in the latter half of the semester, once we have covered a decent amount of techniques, I begin every class period with a sample anthropolgoical question and I ask the students what technique they would need to use to answer the question. I do not ask them to compute the answer, but just to go through the conceptual process to determine whether a chi square is appropriate or a correlation coefficient (and what kind), etc.

Third, and related to the second strategy, we build a massive flow chart through the course of the semester that helps the students navigate to the appropriate statistical technique through a series of questions (questions include: how many variables do you have? what kind of variables are they? are you dealing with samples or popualtions? how many samples?).

Fourth, I make the in class exercises and tests open book: this means that when they study, they can spend more time on the conceptual side because they do not have to memorize the computational formulas.

Reviewer Comments:

ANT 360: Statistics in Anthropology

MWF 12-12:50, Lafferty Hall 201c, Spring 2016
Professor: Dr. Scott R. Hutson
scotthutson@uky.edu 859 257 9642
Office Hours: Monday 1-2, Friday 10-11, or by appointment

Bulletin Description

Students learn how to use probability and quantitative data to test hypotheses in anthropology. Due to common characteristics of anthropological data sets, this class emphasizes methods appropriate for handling small sample sizes and nominal and ordinal scale variables. The course also covers descriptive statistics, sampling, spatial analysis, confidence intervals, and the creation of charts and tables. Since the class focuses more on core concepts than mechanical computation, lessons learned in the context of anthropological questions can be applied to everyday decisions.

Background

This class is intended for 30 or fewer students and will be offered once every two years. The ultimate goal of this course is to learn to use probability to test hypotheses in anthropology and everyday life with numerical data. The course begins by discussing different kinds of variables, a variety of ways to present quantitative data graphically and how to use spreadsheets. The course then focuses on descriptive statistics such as central tendencies (mean, median, mode) and dispersion (variance, standard deviation, coefficient of variation, and more). The course then covers sampling, the binomial distribution, and the normal distribution as a way of introducing the key concept of probability and confidence intervals. Students will then learn, as part of hypothesis testing, how to compare variates to means, to compare two means, to explore correlations between variables, and to use linear regression equations. Due to the importance of spatial analysis and comparisons of artifact assemblages in anthropology, the semester ends by covering these two topics. In general, the course places more stress on understanding how to approach a question (which quantitative techniques are appropriate) and less time on mathematical computation. The core methods (univariate and bivariate statistics) are no different from most introductory statistics classes but the class is tailored to anthropology. This means that nearly all case studies and data sets will come from anthropology (particularly cultural anthropology, physical anthropology and archaeology) and it also means that emphasis will shift to accommodate some of the aspects of quantitative analysis in anthropology. For example, anthropologists often work with small sample sizes and often use nominal and ordinal variables. Therefore, we will stress non-parametric statistics (Chi-square, Spearman's rho) as much or more so than parametric statistics (Student's t, Pearson's r).

To solidify material taught in class, students will complete problem sets, using pencil and paper as well as basic software such as Microsoft Excel. No previous background in statistics is necessary to take this class.

Pre-requisites

This course has no pre-requisites, but it is a 300 level anthropology class so a background in anthropology is very helpful.

Student Learning Outcomes: After completing this course, students will be able to:

--Evaluate basic claims made by friends and the popular media by using concepts such as sampling, dispersion, and probability

--Design ways to test hypotheses by choosing appropriate statistical techniques and utilizing probability.

--Recognize different kinds of variables: nominal, ordinal, interval, and ratio, and understand which statistics can be used with particular kinds of variables

--Demonstrate the ability to create a variety of charts (histograms, scatterplots, ogives) to display data visually.

--Deomonstrate understanding of descriptive statistics

--Use a variety of univariate statistical techniques (binomials, z-scores, Student's t, ANOVA).

--Differentiate between a variety of bivariate statistics and correlation coefficients

--Demonstrate mastery of the use of spreadsheets and statistical techniques within Microsoft Excel.

Grading

Grade components

Take home problem sets	200 points (40%)
In class exercises	60 points (12%)
Attendance	60 points (12%)
Student project and presentation	40 points (8%)
Final exam (Wed. May 4th, 1:00 pm, Laff. 201c)	140 points (28%)

Grade scale

A = 450 to 500 points, 90 - 100%
B = 400 to 449 points, 80 – 89%
C = 350 to 399 points, 70 – 79%
D = 300 to 349 points, 60 – 69%
E = 299 points or below, < 60%

Summary Description of Grading Components

Problem sets: Students will complete eight open-book problem sets throughout the course of the semester. Most problem sets are handed out on a Friday and due the following Monday (see schedule below). Each Problem set is worth 25 points. The problem sets to enable students to demonstrate that they have learned the material. Due dates: Jan. 20, Jan. 29, Feb. 15, Feb. 22, Mar. 7, Mar. 21, Apr. 4, and Apr. 18.

In-class exercises: Students will complete three sets of in-class puzzles. These are similar to the problem sets (they are open book). Each is worth 20 points. Dates: Feb. 3, Feb. 25, and Mar. 25.

Attendance: Coming to class is CRUCIAL for learning the material. Students can earn up to 100 points for coming to class. Each unexcused absence results in a 5 point deduction until the fourth unexcused absence, which results in an attendance grade of 0.

Research Project: Students will be required to select an anthropological data set, frame a hypothesis, test the hypothesis, and present the results in class on April 25.

Final exam: this open book exam will cover material from the entire semester. The exam is scheduled for Wed. May 4th, 1:00 pm, Laff. 201c.

CHECK CANVAS REGULARLY FOR ANNOUNCEMENTS AND OTHER MATERIALS

Expectations for graduate students beyond the expectations for undergraduates

Not applicable

Tentative Course Schedule: See the end of the syllabus

Final Exam Information

Wednesday, May 4th, 1:00 pm, Lafferty Hall room 201c.

Mid-term Grade

I will enter Mid-term grades in myUK by March 11th, 2016. Midterm grades consist of all work done in the course up to March 10th.

Submission of Assignments

Most problem sets will be turned in on paper. For each day late, two points will be docked from the final grade.

Attendance Policy

Coming to class is CRUCIAL for learning the material. Students can earn up to 100 points for coming to class. Each unexcused absence results in a 5 point deduction until the fourth unexcused absence, which results in an attendance grade of 0.

Excused Absences

Students need to notify the professor of absences prior to class when possible. *Senate Rules 5.2.4.2* defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Two weeks prior to the absence is reasonable, but should not be given any later. Information regarding major religious holidays may be obtained through the Ombud (859-257-3737), http://www.uky.edu/Ombud/ForStudents_ExcusedAbsences.php.

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused) per University policy.

Per *Senate Rule 5.2.4.2*, students missing any graded work due to an excused absence are responsible: for informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required); and for making up the missed work. The professor must give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred.

Verification of Absences

Students may be asked to verify their absences in order for them to be considered excused. *Senate Rule 5.2.4.2* states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness, or death in the family. Appropriate notification of absences due to University-related trips is required prior to the absence when feasible and in no case more than one week after the absence.

Academic Integrity

Per University policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the University may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Senate Rules 6.3.1 (see http://www.uky.edu/Faculty/Senate/ for the current set of *Senate Rules*) states that all academic work, written or otherwise, submitted by students to their instructors or

other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording, or content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which a student submits as his/her own, whoever that other person may be. Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content, and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so generally and freely circulated as to be a part of the public domain.

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Accommodations due to disability

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at drc@uky.edu. Their web address is http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/.

Readings

Assigned readings consist of textbooks and articles. Please consult the schedule on the final page of this syllabus to see what needs to be read for each class. Readings assigned for a particular day should be read prior to the class for that day.

Textbook, available for purchase at the bookstores.

Reconfiguring Anthropology: First Principles of Probability and Statistics (Waveland Press, 1986), by David Hurst Thomas

Articles, availability will be discussed in class

Cowgill, George
1990 Why Pearson's r is Not a Good Similarity Coefficient for Comparing Collections. *American Antiquity* 55(3):512-521.

Huff, Darrell
1993[1954] *How to Lie with Statistics*. W. W. Norton and Company.

Whallon, Robert 1987 "Simple Statistics." In *Quantitative Research in Archaeology: Progress and Prospects*, edited by Mark S. Aldenderfer, pp. 131- 150. Newberry Park, CA: Sage.

VanPool, Todd and Robert D. Leonard
2011 Chapter 10: Analysis of Variance and the F-Distribution. *Quantitative Analysis in Archaeology*. John Wiley and Sons, New York.

Chippindale, Christopher 2000 "Capta and Data: On the True Nature of Archaeological Information." *American Antiquity,* 65:605-612.

Hodder, Ian and Clive Orton 1976 "Point Pattern Analysis," chapter 3 of *Spatial Analysis in Archaeology*. Cambridge: Cambridge University Press.

Shennan, Stephen 1988 "Simplifying Complex Spaces: The Role of Multivariate Analysis," chapter 13 of *Quantifying Archaeology*. San Diego, Academic Press.

Thomas, David Hurst
1978 The Awful Truth about Statistics in Archaeology. *American Antiquity* 43:231-244.

Schedule:

Week 1
Jan 13 (w): Introduction: descriptive statistics versus inferential statistics
Jan 15 (f): Variables, levels of measurement, populations versus samples. READING: Thomas chapters 1 and 2, Huff ch. 5

Week 2
Jan 18 (m): No Class, MLK birthday
Jan 20 (w): Pie charts, bar charts, READING: Thomas chapter 3. PROBLEM SET 1 DUE
Jan 22 (f): Frequency distributions, stem and leaf plots, histograms. READING: Chippindale

Week 3

Jan 25 (m): Mean median and mode. READING Thomas, pp. 61-72
Jan 27 (w): Central tendencies and how variates are distributed. READING: Huff chapter 2
Jan 29 (f): Dispersion: range, interquartile range, box and whisker plots. READING: Thomas pp. 72-88. PROBLEM 2 SET DUE

Week 4
Feb 1 (m): Dispersion: standard deviation, variance, and CV. READING: Huff chapter 4
Feb 3 (w): In-class exercise 1: doing it by yourself is a great way to learn!
Feb 5 (f): Sampling (random, stratified, systematic). READING Thomas Chapter 5

Week 5
Feb 8 (m): Probability
Feb 10 (w): The binomial distribution 1 READING Thomas, Chapter 6
Feb 12 (f): The binomial distribution 2: Pascal's triangle, combinations

Week 6
Feb 15 (m): The normal distribution READING Thomas Chapter 7. PROBLEM SET 3 DUE
Feb 17 (w): Z scores and comparing a single variate to a population
Feb 19 (f): The central limit theorem Thomas Chapter 8

Week 7
Feb 22 (m): Z scores and comparing a sample mean to a population mean, READING Thomas chapter 9. PROBLEM SET 4 DUE
Feb 24 (w): Hypothesis testing and regions of rejection
Feb 26 (f): In-class exercise 2: doing it by yourself is a great way to learn!

Week 8
Feb 29 (m): The T test for comparing a sample to a population, READING Thomas chapter 10
Mar 2 (w): The T test for comparing two samples, READING: Whallon
Mar 4 (f): Comparing three or more samples, ANOVA, READING: VanPool and Leonard

Week 9
Mar 7 (m): Comparing three or more sample, ANOVA. PROBLEM SET 5 DUE
Mar 9 (w): Ordinal scale comp. of central tendencies: Mann Whitney U and the normal approximation of the Wilcoxon two sample test.
READING: Thomas, Chapter 12
Mar 11 (f): Ordinal scale comp. of central tendencies: handling ties and working with 3 or more samples (Kruskal Wallis)

Spring Break

Week 10
Mar 21 (m): Nominal scale testing: intro. and univariate chi square
READING: Thomas, Chapter 11. PROBLEM SET 6 DUE
Mar 23 (w): Nominal scale testing: bivariate chi square, tests of strength (ϕ coefficient),

corrections for small samples (Yates, Fisher)
Mar 25 (f): In-class exercise 3: doing it by yourself is a great way to learn!

Week 11
Mar 28 (m): Regression: finding slope and intercept using least squares method
READING: Thomas, Chapter 13
Mar 30 (w): Regression: Coefficient of determination and non-determination
April 1 (f): NO CLASS

Week 12
April 4 (m): Regression: cases when regression lines are not useful, confidence limits around an estimate given by a regression equation
April 6: Correlation: Pearson's r, READING: Thomas, Chapter 14 PROBLEM SET 7 DUE
April 8: In-class exercise 4: doing it by yourself is a great way to learn!

Week 13
April 11 (m): Correlation matrices and assessing statistical significance of correlation coefficients
April 13 (w): Non-parametric correlation coefficients
April 15 (f): Partial correlation, multiple regression, dummy variables

Week 14
April 18 (m): Spatial analysis, READING: Hodder and Orton 1976, PROBLEM SET 8 DUE
April 20 (w): Diversity analysis
April 22 (f): NO CLASS

Week 15
April 25 (m): student presentations, READING: Thomas chapters 15 and 16
April 27 (w): student presentations
April 29 (f): review for final exam

EXAM: May 4, 1:00