

1. General Information

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

Date Submitted: 2/1/2013

1b. Department/Division: Statistics

1c. Contact Person

Name: Dr. Mark A. Gebert

Email: mark.gebert@uky.edu

Phone: 257 6903

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Specific Term/Year¹ Fall 2013

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?: Yes⁴

2b. Prefix and Number: STA 296

2c. Full Title: STATISTICAL METHODS AND MOTIVATIONS

2d. Transcript Title:

2e. Cross-listing:

2f. Meeting Patterns

LECTURE: 2

RECITATION: 1

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: Introduction to principles of statistics with emphasis on conceptual understanding. Students will articulate results of statistical description of sample data (including bivariate), application of probability distributions, confidence interval estimation and hypothesis testing to demonstrate properly contextualized analysis of real-world data.

2k. Prerequisites, if any: MA 113, MA 123, MA 137, or equivalent.

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Winter,

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?: 24

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: No

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

If Yes, explain: [var7InterestExplain]

8. Check the category most applicable to this course: Not Yet Found in Many (or Any) Other Universities ,

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?: Yes

If YES, list affected programs: AG-BS: Ag Econ, Ag Econ—Premajor AG-BS: Ag Econ, Agribus Mgt &Food Mkt—Premajor All BE degree programs—Premajor HS Medical Lab Sci (frmr: Clin Lab Sci)—Prereq requirement AS-BA: Economics—Premajor AS-BS: Economics—Premajor AG-BS: Equine Science &Management - Opt B=Eq Mgmt—Mgt-Opt B requirement BE-MINOR: Business—Premajor Requirements AG-BS: Food Science—Premajor HS-BHS: Human Health Science, Physician Asst Opt—Prereq Coursework req HS-BHS: Human Health Science, Pharmacy Opt—Prereq Coursework req HS-BHS: Human Health Science, Physical Therapy Opt—Prereq Coursework req AG-BS: Hospitality Management—Premajor AS-BA: Intl St, For Lang-Intl Econ, [language]—Econ Core Crss req ED-BAEDU: Mid Sch Ed, [Mathematics Content Area]—Content Area: Mathematics AG-BS: Human Nutrition—Premajor AG-BS: Natural Resources &Environmental Science—Premajor AG-BS: Hort, Plant, &Soil Sci-Crop, Soil &Horticulture Sci —Specialty Support req ED-BAEDU: Sec Edu - Math EducProgram Related Studies—req DS-BAID: Interior Design —Focused Electives (Business)

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: Dr. Mark A. Gebert

Instructor Email: mark.gebert@uky.edu

Internet/Web-based: Yes

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? re: How does ... among students? Course syllabus provides students with primary instructor's, secondary instructor's (instructor in charge of online homework and study enhancement site), and teaching assistants' email addresses as well as an expectation for time until response. re: Does the course ... Learning Considerations? Yes, having been fashioned entirely from the University Senate Syllabus model.

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. Textbook: identical Course goals: identical Assessment of learning outcomes: identical The only portions that are not able to be made identical, face-to-face lectures and in-laboratory recitations ("labs") led by teaching assistants are carried out by asynchronous means, with pre-made video lectures available to the students.

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. The video lectures mentioned above are made available on the University of Kentucky Blackboard system and so are only available with the students myUK password; the online homework and study enhancement site is a subscription-based system, again password-based, however students are allowed and even encouraged, other than on the examinations, to work together. As far as examinations, this course's pre-cursor, STA291 and this department has led the university in exploration of means of ensuring integrity of student results--we currently require (and see no need to alter this policy) our students to register with a NCTA-member site to take their exams or credit is not given. As far as academic offense policy, a link to the University of Kentucky's policy is provided in the syllabus, shown during an introductory, "welcome to the course" video, and remains posted during the run of the session.

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? No

If yes, which percentage, and which program(s)? n.a.

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? The University of Kentucky's wide range of student services are referenced, just as the academic offense policy is, during the introductory video while introducing the course. The analogous situation is a student sitting in the opening day's lecture in a face-to-face class: just as I cannot assure that the student in the face-to-face class is going to take advantage of the services I refer her/him to in that opening day lecture, I am equally uncertain that a distance-learning student will do the same. So I would say it is equivalent access.

6. How do course requirements ensure that students make appropriate use of learning resources? By making their utilization part of their course grade. Encouragement/support beyond this is through repeated reminder and amazing staff support in the form of a secondary instructor whose sole responsibility is guiding their efforts in keeping connected with any online work/course in the statistics department

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program. Via access to UK's Blackboard system.

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/>)? Via the aforementioned introductory video lecture, syllabus, support staff person, iterative reminders from primary and secondary instructors. Re: Does the syllabus ... ()? Yes.

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? YES

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. Currently the Document Handling System is forcing some text in this box even when "Yes" is checked.

10. Does the syllabus contain all the required components? YES

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

Instructor Name: Dr. Mark A. Gebert

SIGNATURE[RHANSON|Roxanna D Hanson|College approval for ZCOURSE_NEW STA 296|20130201

SIGNATURE|ASTRO11|Arnold J Stromberg|Dept approval for ZCOURSE_NEW STA 296|20130130

SIGNATURE|HMBUSH0|Heather Bush|STA 296 ZCOURSE_NEW UKCEC Expert Review|20130909

SIGNATURE|JMETT2|Joanie Ett-Mims|UKCore approval for ZCOURSE_NEW STA 296|20131009

SIGNATURE|CPTHUR0|Christopher P Thuringer|Undergrad Council approval for ZCOURSE_NEW STA 296|20140129

SIGNATURE|RHANSON|Roxanna D Hanson|College approval for ZCOURSE_NEW STA 296|20130325

SIGNATURE|ASTRO11|Arnold J Stromberg|Dept approval for ZCOURSE_NEW STA 296|20130201

Courses **Request Tracking**

New Course Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate R

Attachments:

Upload File

ID	Attachment
Delete 1312	SJR_Form_STA_296.docx
Delete 2173	STA296R.pdf
Delete 2175	STA296_syllabus_Revised.pdf

First 1 2 Last

Select saved project to retrieve...

(*denotes required fields)

1. General Information

a. * Submitted by the College of: ARTS & SCIENCES Submission Date: 2/1/2013

b. * Department/Division: Statistics

c. * Contact Person Name: Dr. Mark A. Gebert Email: mark.gebert@uky.edu Phone: 257 6903
 * Responsible Faculty ID (if different from Contact) Email: Phone:

d. * Requested Effective Date: Semester following approval OR Specific Term/Year

e. Should this course be a UK Core Course? Yes No

If YES, check the areas that apply:

- Inquiry - Arts & Creativity
- Composition & Communications - II
- Inquiry - Humanities
- Quantitative Foundations
- Inquiry - Nat/Math/Phys Sci
- Statistical Inferential Reasoning
- Inquiry - Social Sciences
- U.S. Citizenship, Community, Diversity
- Composition & Communications - I
- Global Dynamics

2. Designation and Description of Proposed Course.

a. * Will this course also be offered through Distance Learning? Yes No

b. * Prefix and Number: STA 296

c. * Full Title: STATISTICAL METHODS AND MOTIVATIONS

d. Transcript Title (if full title is more than 40 characters):

e. To be Cross-Listed ² with (Prefix and Number):

f. * Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours² for each meeting pattern type.

- Lecture
- Laboratory¹
- Recitation
- Discussion
- Indep. Study
- Clinical
- Colloquium
- Practicum
- Research
- Residency
- Seminar
- Studio
- Other

If Other, Please explain:

g. * Identify a grading system: Letter (A, B, C, etc.) Pass/Fail Graduate School Grade Scale

h. * Number of credits:

i. * Is this course repeatable for additional credit? Yes No

If YES: Maximum number of credit hours:

If YES: Will this course allow multiple registrations during the same semester? Yes No

J. * Course Description for Bulletin:

Introduction to principles of statistics with emphasis on conceptual understanding. Students will articulate results of statistical description of sample data (including bivariate), application of probability distributions, confidence interval estimation and hypothesis testing to demonstrate properly contextualized analysis of real-world data.

k. Prerequisites, if any:

MA 113, MA 123, MA 137, or equivalent.

l. Supplementary teaching component, if any: Community-Based Experience Service Learning Both

3. * Will this course be taught off campus? Yes No

If YES, enter the off campus address:

4. Frequency of Course Offering.

a. * Course will be offered (check all that apply): Fall Spring Summer Winter

b. * Will the course be offered every year? Yes No

If No, explain:

5. * Are facilities and personnel necessary for the proposed new course available? Yes No

If No, explain:

6. * What enrollment (per section per semester) may reasonably be expected? 24

7. Anticipated Student Demand.

a. * Will this course serve students primarily within the degree program? Yes No

b. * Will it be of interest to a significant number of students outside the degree pgm? Yes No

If YES, explain:

This is a service course that is a premajor requirement for many students on campus, notably students in the College of Business and Economics, but also for others. Basically the entire existing STA 291 audience will

8. * Check the category most applicable to this course:

Traditional - Offered in Corresponding Departments at Universities Elsewhere

Relatively New - Now Being Widely Established

Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

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

If YES, name the proposed new program:

b. * Will this course be a new requirement ²for ANY program? Yes No

If YES ², list affected programs::

AG-BS: Ag Econ, Ag Econ-Premajor

AG-BS: Ag Econ, Agribus Mgt & Food Mkt-Premajor

10. Information to be Placed on Syllabus.

a. * Is the course 400G or 500? Yes No

If YES, the differentiation for undergraduate and graduate students must be included in the information required in 10.b. You must include: (I) identification of add assignments by the graduate students; and/or (II) establishment of different grading criteria in the course for graduate students. (See SR 3.1.4.)

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

Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for DL fields are required!

Introduction/Definition: For the purposes of the Commission on Colleges Southern Association of Colleges and Schools accreditation review, *distance learning* is defined as a educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructors are not in the same place. Instruction may be synchronous or asynchronous. A distance learning (DL) course may employ correspondence study, or audio, video, or computer technologies. A number of specific requirements are listed for DL courses. **The department proposing the change in delivery method is responsible for ensuring that the requirements are satisfied at the individual course level.** It is the responsibility of the instructor to have read and understood the university-level assurances regarding an equivalent experience for students utilizing DL (available at <http://www.uky.edu/USC/New/forms.htm>).

Course Number and Prefix:	STA 296	Date:	1/28/2013
Instructor Name:	Dr. Mark A. Gebert	Instructor Email:	mark.gebert@uky.edu
Check the method below that best reflects how the majority of the course content will be delivered.			
Internet/Web-based <input checked="" type="checkbox"/> Interactive Video <input type="checkbox"/> Hybrid <input type="checkbox"/>			

Curriculum and Instruction

- How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Syllabus Guidelines, specifically the Distance Learning Considerations?
re: How does ... among students? Course syllabus provides students with primary instructor's, secondary instructor's (instructor in charge of online homework and study enhancement site), and teaching assistants' email
- 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, and student learning outcomes, etc.
Textbook: identical
Course goals: identical
- 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 policy; etc.
The video lectures mentioned above are made available on the University of Kentucky Blackboard system and so are only available with the students myUK password; the online homework and study enhancement site is a subscription-
- 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 as defined above?
No
Which percentage, and which program(s)?
n.a.
*As a general rule, if approval of a course for DL delivery results in 50% or more of a program being delivered through DL, the effective date of the course's DL delivery is 12 months from the date of approval.
- 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?
The University of Kentucky's wide range of student services are referenced, just as the academic offense policy is, during the introductory video while introducing the course. The analogous situation is a student sitting in the

Library and Learning Resources

- How do course requirements ensure that students make appropriate use of learning resources?
By making their utilization part of their course grade. Encouragement/support beyond this is through repeated reminders and amazing staff support in the form of a secondary instructor whose sole responsibility is guiding their
- Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.
Via access to UK's Blackboard system.

Student Services

- 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 the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?
Via the aforementioned introductory video lecture, syllabus, support staff person, iterative reminders from primary and secondary instructors.
- Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)?
 Yes
 No
If no, explain how students 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.
Currently the Document Handling System is forcing some text in this box even when "Yes" is checked.
- Does the syllabus contain all the required components, below? Yes
 - Instructor's *virtual* office hours, if any.
 - The technological requirements for the course.
 - Contact information for Distance Learning programs (<http://www.uky.edu/Distancelearning>) and Information Technology Customer Service Center (<http://www.uky.edu/UKIT/Help/>; 859-218-HELP).
 - Procedure for resolving technical complaints.
 - Preferred method for reaching instructor, e.g. email, phone, text message.
 - Maximum timeframe for responding to student communications.

- Language pertaining academic accommodations:
 - "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation details the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or jkarnes@email.uky.edu."
- Specific dates of face-to-face or synchronous class meetings, if any.
- Information on Distance Learning Library Services (<http://www.uky.edu/Libraries/DLIS>)
 - Carla Cantagallo, DL Librarian
 - Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
 - Email: dllservice@email.uky.edu
 - DL Interlibrary Loan Service: http://www.uky.edu/Libraries/libpage.php?web_id=253&lib_id=16

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

Instructor Name:

Dr. Mark A. Cebert

Abbreviations: DLP = Distance Learning Programs ATG = Academic Technology Group Customer Service Center = 859-218-HELP (<http://www.uky.edu/UKIT/Help>)

Revised 8/09

¹³³ Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

¹³² The chair of the cross-listing department must sign off on the Signature Routing Log.

¹³¹ In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. A meeting, generally, represents at least two hours per week for a semester for one credit hour. (from SR 5.2.1)

¹⁴¹ You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

¹⁴² In order to change a program, a program change form must also be submitted.

Rev 8/09

Submit as New Proposal Save Current Changes

Course Review Form
Statistical Inferential Reasoning

Reviewer Recommendation

Accept Revisions Needed

Course: STA296 Statistical Methods and Motivations

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:

Lectures 2, 3, 4, 5, 6, 10, 11, 16, 17, 18, 22, 23, 24, and 27

SMW #2

Labs 4 and 8

Brief Description:

Examination of the syllabus/Statistical Motivation Worksheets' description:

Focus on Motivations 2: students' class-based skill sets will be turned towards the means to evaluate common claims arising from 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.

Labs:

4 Excel lab (quantitative analysis, linear regression, graphic analysis)

8 Discovery/Citation/Discussion examples of MOEs, CIs in appropriate (and inappropriate?) sources, conceptual, contextual analysis of them submitted as SMW #2

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:

Lectures 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 15, 19, 20, 22, 23, 24, 25, 26, and 27

SMW #3

Labs 1, 2, 6, and 9

Brief Description:

Examination of the syllabus/Statistical Motivation Worksheets' description:

Focus on Motivations 3: students will transfer knowledge from classroom/lab 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

Labs:

1 Discovery/Citation/Discussion (D/C/D) of relative merits of 5 (?) information sources—journals, newspapers, etc. Evidence of having communicated with TA, instructor, resource librarian required.

2 D/C/D of (instructor-suggested) resources/examples of sensitivity/specificity

6 Excel lab (discrete prob. distribution expectation, variance)

9 D/C/D examples of hypothesis testing from appropriate (instructor-supplied) sources, conceptual, contextual analysis of them submitted as SMW #3

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:

Describing data: lectures 3, 4, 5, 6, 9, 10, 11, 15, 17, 18, 22, 23, 24 and 27

SMW #1 and #4

Labs all but 5, 10, and 15

Brief Description:

Examination of the syllabus/Statistical Motivation Worksheets' description:

Focus on Motivations 1: students to evaluate common claims that arise from statistical constructs, such as numerical summaries, through the informal act of human inference; and to articulate some of the associated challenges (e.g. with conditional reasoning, association versus causation) and concepts (e.g., Simpson's Paradox).

Focus on Motivations 4: students distill body of class learning, finally evaluating common claims that arise from statistical constructs, such as graphs, through the informal act of human inference; articulating some of the associated challenges (e.g., hidden variables, confounding, association versus correlation).

See labs' description on syllabus.

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:

Estimation: lectures 2, 3, 4, 5, 6, 10, 11, 16, 17, 18, 22, 23, 24, and 27

SMW #2

Labs 4 and 8

Statistical testing: lectures 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 15, 19, 20, 22, 23, 24, 25, 26, and 27

SMW #3

Labs 1, 2, 6, and 9

Describing data: lectures 3, 4, 5, 6, 9, 10, 11, 15, 17, 18, 22, 23, 24 and 27

SMW #1 and #4

Labs all but 5, 10, and 15

Information Literacy: lectures 2, 5, 6, 9, and 28

Lab 1

Brief Description:

Examination of the syllabus/Statistical Motivation Worksheets' description within the syllabus provides evidence of satisfaction.

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:

Weeks 3, 8, 9, and 14: Statistical Motivation Worksheets (SMWs) Introduced in lecture, expedited and completed in labs on given weeks

Week 15: Summary Statistical Motivation Project Turned in at last lab meeting

Brief Description:

These class/lab activities will all be introduced in lecture; the SMWs will be further facilitated by the instructor in a dedicated lecture/teaching assistants in a dedicated lab period. The topics for each of these may be viewed on the proposed course syllabus.

For the Summary Statistical Motivation Project, an omnibus problem will be provided, encompassing at least 3 of the 4 major points in the statistical inferential reasoning standards (data literacy, understanding of inference involving MOE/CI, understanding of inference involving numeric/graphic summaries, understanding of inference involving formal hypothesis/significance testing). An example/suggestion/candidate from previous STA210 instructor(s): something at least reminiscent of (the 210 workbook's) BTC 3.2; Work involves formulating the hypotheses, collecting data, computing the p-value and interpreting that p-value/drawing a conclusion depending on whether it is larger or smaller than 0.05.

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:

Brief Description:

Reviewer Comments:

Pending Senate Review

STA296 Statistical Methods and Motivations

Area Expert Summary: Two faculty reviewers outside the College of Arts and Sciences examined this course proposal. Both reviewers were positive, and one reviewer requested additional details be added to the syllabus for the summary assignment. The course originator agreed and added the following:

The statistical motivation worksheets involve use of statistical formulae and procedures; however, their successful completion involves the more important task of showing mastery of the respective conceptual notions. The last of these, due at the penultimate lab, is a summary exercise: for this, a work involving at least 3 of the 4 major points in the statistical inferential reasoning standards (data literacy, understanding of inference involving margins of error/confidence intervals, understanding of inference involving numeric/graphic summaries, understanding of inference involving formal hypothesis/significance testing) will be executed by the student and is expected to take approximately 15 to 25 (fifteen to twenty-five) hours of total effort. Because of its comprehensive nature, it may comprise, as long as it is not limited to, (pertinent) material previously submitted by the same student(s).

The revised syllabus is included. Both reviewers agreed that this course should be accepted for SIR, and I concur.

**Course Review Form
Statistical Inferential Reasoning**

Reviewer Recommendation

Accept Revisions Needed

Course: STA 296

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:
Lecture 18 and lab 8

Brief Description:
This is the specific focus in this lecture and lab.

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:
Lecture 21 and lab 9

Brief Description:
This is the specific focus in this lecture and lab.

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:
Lectures 9 and 28, and labs 3 and 14

Brief Description:
This is the specific focus in these lectures.

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:
Estimation: Lectures 16 and 17, and previous lectures
Statistical Testing: Lectures 19-26
Describing Data: Lectures 1-9, although lectures 10-15 are also relevant

Brief Description:

Lectures 16 and 17 are directly on estimation, although previous lectures are necessary material as to what to estimate.

Lectures 19-26 cover testing in a variety of different settings.

Lectures 1-9 specifically describe data and summaries of data, although lectures 10-15 are also relevant to data description and how data are generated

Information literacy: All lectures

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:

Lectures 18 and 21, and labs 8 and 9

Brief Description:

These cover it, with examples given in the labs

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:

Brief Description:

Reviewer Comments:

The whole course looks conceptual and not largely focused on computation.

Course Review Form
Statistical Inferential Reasoning

Reviewer Recommendation

Accept Revisions Needed

MINOR

Course:

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:

LECTURES 3, 4, 6, 10 LAB 8

Brief Description:

*SMW # 2
CONF INTERVALS AND ERROR SUFFICIENTLY COVERED.*

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:

*LECTURES 19, 20, 22, 23, 25, 26 (ESPECIALLY)
SMW # 3*

Brief Description:

*COMMON STATISTICAL INDEPENDENT & DEPENDENT
SAMPLE TESTS ARE COVERED.*

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:

LECTURES 2, 3, 4, 5, 6

Brief Description:

*CHARTS, GRAPHICS, TABLES, AND OTHER
APPROACHES TO DATA SUMMARIZATION ARE INCLUDED.*

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:

ALL LECTURES.

Brief Description:

*TOPIC DISTRIBUTION FOR THESE 4
PRIMARY CONCEPTUAL DOMAINS ARE
COVERED.*

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:

Brief Description:

THE STATISTICAL MOTIVATION WORKSHEETS ARE INCLUDED AMONG WITH A SUMMARY PROJECT AT LAST LAB MEETING.

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:

Brief Description: THIS IS PRIMARILY A CONCEPTUAL STATISTICAL COURSE, WIDELY APPLICABLE TO STUDENTS IN MANY MAJORS.

Reviewer Comments:

THE SYLLABUS INCLUDES A SUMMARY MOTIVATION PROJECT WORTH 6% OF THE GRADE. IT WOULD BE GOOD TO INCLUDE A SECTION IN THE SYLLABUS WHICH DESCRIBED THE DETAILS AND EXPECTATIONS OF THIS PROJECT.

STA296
Statistical Methods and Motivations

Instructor: Mark A. Gebert, Ph.D.
Office Address: 347 Multidisciplinary Science
Building
Email: mark.gebert@uky.edu
Office Phone: 257-6903

Office hours: MW 11-12; TR 2:30-3:30

Course Description:

Introduction to principles of statistics with emphasis on conceptual understanding. Students will articulate results of statistical description of sample data (including bivariate), application of probability distributions, confidence interval estimation and hypothesis testing to demonstrate properly contextualized analysis of real-world data.

Prerequisites:

MA 113, MA 123, MA 137, or equivalent.

Student Learning Outcomes:

After completing this course, the student will be able to:

1. Demonstrate understanding of p -value, margins of error and confidence intervals, formal hypothesis tests through their creation or evaluation
2. Generate and/or analyze critically quantitative and graphic data summaries in their real-world contexts
3. Integrate knowledge from huge reservoir of available data and illustrate their comprehension of that knowledge through individual summarization

Course goals or objectives

A student's successful completion of this course entails: mastering basic statistical concepts, including those associated with its language, the execution of elementary statistical procedures, and correct interpretation of results. Among the methods are estimation of the mean and proportion, single- and two-sample case; hypothesis testing in the same cases; and uni- and bivariate descriptive analyses of quantitative and qualitative variables. Extra attention will be paid to students' demonstrating understanding of: margins of error and confidence intervals; formal hypothesis tests, including the notion of the p -value; interpretation of quantitative and graphic data summaries; and critical consumption of vast amount of available information in society and one's profession today.

Required Materials:

- MyStatLab access with course ID: **gebertyXXXXXX**. You need this as well as an access code, purchased separately.
- The University of Kentucky, William Rayens, Mark Gebert, et al. Making Sense of Certainty (excerpted), 2013
- Calculator ("2-variable statistics" on the package)

Description of Course Activities and Assignments

- Course is lecture-based, with labs designed to supplement these.
- Assignments made via online homework site are focused on the applications area of the course: helping the student practice the statistical methods seen in lecture and in lab.
- The statistical motivation worksheets involve use of statistical formulae and procedures; however, their successful completion involves the more important task of showing mastery of the respective conceptual notions. The last of these, due at the penultimate lab, is a summary exercise: for this, a work involving at least 3 of the 4 major points in the statistical inferential reasoning standards (data literacy, understanding of inference involving margins of error/confidence intervals, understanding of inference involving numeric/graphic summaries, understanding of inference involving formal hypothesis/significance testing) will be executed by the student and is expected to take approximately 15 to 25 (fifteen to twenty-five) hours of total effort. Because of its comprehensive nature, it may comprise, as long as it is not limited to, (pertinent) material previously submitted by the same student(s).
- Finally, the tests will cover both applications- and conceptually-based learning in the course

Course Assignments

- 3 Exams at 100 points each
- 13 graded homeworks at 1 point each
- 9 graded labs at 10 points each
- 4 Statistical Motivation Worksheets at 100 points each

Summary Description of Course Assignments

Your course grade will be calculated based on the following components (each of the components explained in full detail on the course's Blackboard web page):

Homework	15%
Instructor/TA guided Exercises ("Labs")	15%
Statistical Motivation Worksheets (SMWs) (4 @ 1% each)	4%
Summary Statistical Motivation Project (due last lab meeting—no exceptions)	6%
Tests (3 @ 20% each), rooms TBA	60%

Grading scale: 90 – 100, A; 80 – < 90, B; < 70 – < 80, C; 60 – < 70, D; <60, E.

Final Exam Information

Date, time, location, other information as posted in the UK Course Catalog and Final Exam calendar at the announcement of the class.

Mid-term Grade

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>)

Course Policies:

Submission of Assignments:

Other than for University of Kentucky excused absences (see below), due when announced or no credit given—no exceptions.

Attendance Policy.

Attendance encouraged but absolutely not tracked, other than exercised carried out during class—for these, the student himself or herself must be there for the exercise as well as for the submission—except as noted in the “submission of assignments” section above, no exceptions.

Excused Absences:

Students need to notify the professor of absences prior to class when possible. S.R. 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. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

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

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.

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.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) 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 the question of plagiarism involving their own 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 anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. 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 of information, the student must carefully acknowledge exactly what, where and how he/she 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 (Section 6.3.1).

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 (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Lecture Schedule (tentative):

Lecture		Contents	Book Sections (if any)
Pre- Material	1	Introduction, get MyLab (course ID: gebertXXXXX) access!	1.1, 2.1, & 2.2
	2	Getting the Data	Chapter 3
	3	Measures of Center	5.3
	4	Measures of Spread	5.4 – 5.6
5	Summarizing Categorical Data	Chapter 4, 5.1, 5.2	
6	Summarizing Quantitative Data	Chapter 4, 5.1, 5.2	
7	Probability	7.1 & 7.4	
8	More Probability	7.5 & 7.6	
9	Focus on Motivations 1: <i>students to evaluate common claims that arise from statistical constructs, such as numerical summaries, through the informal act of human inference; and to articulate some of the associated challenges (e.g. with conditional reasoning, association versus causation) and concepts (e.g., Simpson's Paradox).</i>		
10	Interpretations of the Standard Deviation	5.8, 5.9, 9.1	
11	Linear Regression (descriptive)	6.1 – 6.10	
12	Discrete Random Variables	8.1 & 8.2	
13	Binomial Probability Distribution	8.4	
14	Continuous Probability Distributions	9.2	
15	Sampling Distributions	10.1 – 10.4	
16	Estimation of the Population Proportion	11.1 – 11.4	
17	Estimation of the Population Mean	12.1, 12.2, & 12.3	
18	Focus on Motivations 2: <i>students' class-based skill sets will be turned towards the means to evaluate common claims arising from 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.</i>		
19	Hypothesis Testing	13.1	
20	Testing About the Proportion, Mean	13.2 – 13.6	
21	Focus on Motivations 3: <i>students will transfer knowledge from classroom/lab 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</i>		
22	Diff. Between Two Means: Dependent Samples	14.7 & 14.8	
23	Diff. Between Two Means: Independent Samples	14.1 – 14.4	
24	Two-Sample Problems w/Categorical Data	15.5	
25	Inf. w/Categ. Data: Tests of Homogeneity	15.1 – 15.4	
26	Inf. w/Categ. Data: Tests of Independence	15.6	
27	Significance of Regression	16.1 – 16.4	
28	Focus on Motivations 4: <i>students distill body of class learning, finally evaluating common claims that arise from statistical constructs, such as graphs, through the informal act of human inference; articulating some of the associated challenges (e.g., hidden variables, confounding, association versus correlation).</i>		

Lab Number	Lectures	Lab Contents
1	Pre-Material, Intro	Discovery/Citation/Discussion (D/C/D) of relative merits of 5 (?) information sources—journals, newspapers, etc. Evidence of having communicated with TA, instructor, resource librarian required.
2	5, 6	D/C/D of (instructor-suggested) resources/examples of sensitivity/specificity
3	7, 8	D/C/D of (instructor-suggested) resources/examples of Simpson's Paradox—summary of labs 2 and 3 submitted as student's SMW* #1
4	9, 10	Excel lab (quantitative analysis, linear regression, graphic analysis)
5	11, Review	Test 1 Review
6	12, 13	Excel lab (discrete prob. distribution expectation, variance)
7	14, 15	Sampling distribution app (online) – focus on next week's "motivation" exercise
8	16, 17	D/C/D examples of MOEs, CIs in appropriate (and inappropriate?) sources, conceptual, contextual analysis of them submitted as SMW #2
9	18, 19	D/C/D examples of hypothesis testing from appropriate (instructor-supplied) sources, conceptual, contextual analysis of them submitted as SMW #3
10	N.A.	Test 2 Review
11	22, 23	Concept: Independent versus dependent sample analysis
12	24, 25	Excel (two-sample t -tests)
13	26, 27	Excel (significance of regression)
14	28	D/C/D examples of bivariate quantitative data plots in appropriate sources, conceptual, contextual analysis of them submitted as SMW #4
15	Review	Collect Summary Statistical Motivation Project/Test 3 Review

*SMW = Statistical Motivation Worksheet

STA296
Statistical Methods and Motivations

Instructor: Mark A. Gebert, Ph.D.
Office Address: 347 Multidisciplinary Science
Building
Email: mark.gebert@uky.edu
Office Phone: 257-6903

Office hours: MW 11-12; TR 2:30-3:30

Course Description:

Introduction to principles of statistics with emphasis on conceptual understanding. Students will articulate results of statistical description of sample data (including bivariate), application of probability distributions, confidence interval estimation and hypothesis testing to demonstrate properly contextualized analysis of real-world data.

Prerequisites:

MA 113, MA 123, MA 137, or equivalent.

Student Learning Outcomes:

After completing this course, the student will be able to:

1. Demonstrate understanding of p -value, margins of error and confidence intervals, formal hypothesis tests through their creation or evaluation
2. Generate and/or analyze critically quantitative and graphic data summaries in their real-world contexts
3. Integrate knowledge from huge reservoir of available data and illustrate their comprehension of that knowledge through individual summarization

Course goals or objectives

A student's successful completion of this course entails: mastering basic statistical concepts, including those associated with its language, the execution of elementary statistical procedures, and correct interpretation of results. Among the methods are estimation of the mean and proportion, single- and two-sample case; hypothesis testing in the same cases; and uni- and bivariate descriptive analyses of quantitative and qualitative variables. Extra attention will be paid to students' demonstrating understanding of: margins of error and confidence intervals; formal hypothesis tests, including the notion of the p -value; interpretation of quantitative and graphic data summaries; and critical consumption of vast amount of available information in society and one's profession today.

Required Materials:

MyStatLab access with course ID: **gebertyXXXXXX**. You need this as well as an access code, purchased separately.
The University of Kentucky, William Rayens, Mark Gebert, et al. Making Sense of Certainty (excerpted), 2013
Calculator ("2-variable statistics" on the package)

Description of Course Activities and Assignments

- Course is lecture-based, with labs designed to supplement these.
- Assignments made via online homework site are focused on the applications area of the course: helping the student practice the statistical methods seen in lecture and in lab.
- The statistical motivation worksheets involve use of statistical formulae and procedures; however, their successful completion involves the more important task of showing mastery of the respective conceptual notions. The last of these, due at the penultimate lab, is a summary exercise: for this, a work involving at least 3 of the 4 major points in the statistical inferential reasoning standards (data literacy, understanding of inference involving margins of error/confidence intervals, understanding of inference involving numeric/graphic summaries, understanding of inference involving formal hypothesis/significance testing) will be executed by the student and is expected to take approximately 15 to 25 (fifteen to twenty-five) hours of total effort. Because of its comprehensive nature, it may comprise, as long as it is not limited to, (pertinent) material previously submitted by the same student(s).
- Finally, the tests will cover both applications- and conceptually-based learning in the course

Course Assignments

- 3 Exams at 100 points each
- 13 graded homeworks at 1 point each
- 9 graded labs at 10 points each
- 4 Statistical Motivation Worksheets at 100 points each

Summary Description of Course Assignments

Your course grade will be calculated based on the following components (each of the components explained in full detail on the course's Blackboard web page):

Homework	15%
Instructor/TA guided Exercises ("Labs")	15%
Statistical Motivation Worksheets (SMWs) (4 @ 1% each)	4%
Summary Statistical Motivation Project (due last lab meeting—no exceptions)	6%
Tests (3 @ 20% each), rooms TBA	60%

Grading scale: 90 - 100, A; 80 - < 90, B; < 70 - < 80, C; 60 - < 70, D; <60, E.

Final Exam Information

Date, time, location, other information as posted in the UK Course Catalog and Final Exam calendar at the announcement of the class.

Mid-term Grade

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>)

Course Policies:

Submission of Assignments:

Other than for University of Kentucky excused absences (see below), due when announced or no credit given—no exceptions.

Attendance Policy.

Attendance encouraged but absolutely not tracked, other than exercised carried out during class—for these, the student himself or herself must be there for the exercise as well as for the submission—except as noted in the “submission of assignments” section above, no exceptions.

Excused Absences:

Students need to notify the professor of absences prior to class when possible. S.R. 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. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

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

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.

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.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) 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 the question of plagiarism involving their own 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 anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. 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 of information, the student must carefully acknowledge exactly what, where and how he/she 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 (Section 6.3.1).

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 (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Lecture Schedule (tentative):

Lecture		Contents	Book Sections (if any)
Pre- Material	1	Introduction, get MyLab (course ID: gebertXXXXX) access!	1.1, 2.1, & 2.2
	2	Getting the Data	Chapter 3
	3	Measures of Center	5.3
	4	Measures of Spread	5.4 – 5.6
5	Summarizing Categorical Data	Chapter 4, 5.1, 5.2	
6	Summarizing Quantitative Data	Chapter 4, 5.1, 5.2	
7	Probability	7.1 & 7.4	
8	More Probability	7.5 & 7.6	
9	Focus on Motivations 1: <i>students to evaluate common claims that arise from statistical constructs, such as numerical summaries, through the informal act of human inference; and to articulate some of the associated challenges (e.g. with conditional reasoning, association versus causation) and concepts (e.g., Simpson's Paradox).</i>		
10	Interpretations of the Standard Deviation	5.8, 5.9, 9.1	
11	Linear Regression (descriptive)	6.1 – 6.10	
12	Discrete Random Variables	8.1 & 8.2	
13	Binomial Probability Distribution	8.4	
14	Continuous Probability Distributions	9.2	
15	Sampling Distributions	10.1 – 10.4	
16	Estimation of the Population Proportion	11.1 – 11.4	
17	Estimation of the Population Mean	12.1, 12.2, & 12.3	
18	Focus on Motivations 2: <i>students' class-based skill sets will be turned towards the means to evaluate common claims arising from 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.</i>		
19	Hypothesis Testing	13.1	
20	Testing About the Proportion, Mean	13.2 – 13.6	
21	Focus on Motivations 3: <i>students will transfer knowledge from classroom/lab 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</i>		
22	Diff. Between Two Means: Dependent Samples	14.7 & 14.8	
23	Diff. Between Two Means: Independent Samples	14.1 – 14.4	
24	Two-Sample Problems w/Categorical Data	15.5	
25	Inf. w/Categ. Data: Tests of Homogeneity	15.1 – 15.4	
26	Inf. w/Categ. Data: Tests of Independence	15.6	
27	Significance of Regression	16.1 – 16.4	
28	Focus on Motivations 4: <i>students distill body of class learning, finally evaluating common claims that arise from statistical constructs, such as graphs, through the informal act of human inference; articulating some of the associated challenges (e.g., hidden variables, confounding, association versus correlation).</i>		

Lab Number	Lectures	Lab Contents
1	Pre-Material, Intro	Discovery/Citation/Discussion (D/C/D) of relative merits of 5 (?) information sources—journals, newspapers, etc. Evidence of having communicated with TA, instructor, resource librarian required.
2	5, 6	D/C/D of (instructor-suggested) resources/examples of sensitivity/specificity
3	7, 8	D/C/D of (instructor-suggested) resources/examples of Simpson's Paradox—summary of labs 2 and 3 submitted as student's SMW* #1
4	9, 10	Excel lab (quantitative analysis, linear regression, graphic analysis)
5	11, Review	Test 1 Review
6	12, 13	Excel lab (discrete prob. distribution expectation, variance)
7	14, 15	Sampling distribution app (online) - focus on next week's "motivation" exercise
8	16, 17	D/C/D examples of MOEs, CIs in appropriate (and inappropriate?) sources, conceptual, contextual analysis of them submitted as SMW #2
9	18, 19	D/C/D examples of hypothesis testing from appropriate (instructor-supplied) sources, conceptual, contextual analysis of them submitted as SMW #3
10	N.A.	Test 2 Review
11	22, 23	Concept: Independent versus dependent sample analysis
12	24, 25	Excel (two-sample t -tests)
13	26, 27	Excel (significance of regression)
14	28	D/C/D examples of bivariate quantitative data plots in appropriate sources, conceptual, contextual analysis of them submitted as SMW #4
15	Review	Collect Summary Statistical Motivation Project/Test 3 Review

*SMW = Statistical Motivation Worksheet