

**RECEIVED**

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OFFICE OF THE  
SENATE COUNCIL**1. General Information**

1a. Submitted by the College of: PUBLIC HEALTH

Date Submitted: 11/19/2015

1b. Department/Division: Dept Of Biostatistics

1c. Contact Person

Name: Andrea Perkins

Email: andrea.perkins@uky.edu

Phone: 218-2021

Responsible Faculty ID (if different from Contact)

Name: Heather Bush

Email: heather.bush@uky.edu

Phone: 218-2097

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

**2. Designation and Description of Proposed Course**

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

2b. Prefix and Number: CPH 330

2c. Full Title: Health Analytics I

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: CPH 330 focuses on applying methods for solving public health analytical problems. This course will build on the statistical principles and scientific reasoning introduced in introductory statistics courses, but will focus on the application of methods for categorical data analysis. Topics include data visualization, exploratory data analysis, summary statistics, statistical testing, estimation, confounding, and the use of regression models commonly encountered in public health. An emphasis on data analytic methods will also introduce students to the use of statistical software.

2k. Prerequisites, if any: BPH Majors only or permission of instructor

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?: 40

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?: No

If Yes, explain:

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:

SIGNATURE|ALHAYS0|Andrea L Perkins|CPH 330 NEW College Review|20150422

SIGNATURE|JMETT2|Joanie Ett-Mims|CPH 330 NEW Undergrad Council Review|20151001

SIGNATURE|ALHAYS0|Andrea L Perkins|CPH 330 ZCOURSE\_NEW Approval Returned to Dept|20151105

SIGNATURE|ALHAYS0|Andrea L Perkins|CPH 330 ZCOURSE\_NEW Approval Returned to Dept|20151118

SIGNATURE|JMETT2|Joanie Ett-Mims|CPH 330 NEW Undergrad Council Review|20151118

SIGNATURE|JMETT2|Joanie Ett-Mims|CPH 330 NEW Undergrad Council Review|20160713

### 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 6895	CPH330 Syllabus submitted to UC updated.docx

(\*denotes required fields)

**1. General Information**

a. \* Submitted by the College of:  Submission Date:

b. \* Department/Division:

c.

\* Contact Person Name:  Email:  Phone:

\* Responsible Faculty ID (if different from Contact):  Email:  Phone:

d. \* Requested Effective Date:  Semester following approval OR  Specific Term/Year <sup>1</sup>

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 <sup>1</sup>  No

b. \* Prefix and Number:

c. \* Full Title:

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

e. To be Cross-Listed <sup>2</sup> with (Prefix and Number):

f. \* Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours<sup>3</sup> for each meeting pattern type.

<input type="text" value="3"/> Lecture	<input type="text"/> Laboratory <sup>4</sup>	<input type="text"/> Recitation	<input type="text"/> Discussion
<input type="text"/> Indep. Study	<input type="text"/> Clinical	<input type="text"/> Colloquium	<input type="text"/> Practicum
<input type="text"/> Research	<input type="text"/> Residency	<input type="text"/> Seminar	<input type="text"/> Studio
<input type="text"/> Other	If Other, Please explain: _____		

g. \* Identify a grading system:

Letter (A, B, C, etc.)

Pass/Fail

Medicine Numeric Grade (Non-medical students will receive a letter grade)

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:

CPH 330 focuses on applying methods for solving public health analytical problems. This course will build on the statistical principles and scientific reasoning introduced in introductory statistics courses, but will focus on the application of methods for categorical data analysis. Topics include data visualization, exploratory data analysis, summary statistics, statistical testing, estimation, confounding, and the use of regression models commonly encountered in public health. An emphasis on data analytic methods will also introduce students to the use of statistical software.

## k. Prerequisites, if any:

BPH Majors only or permission of instructor

l. Supplementary teaching component, if any:  Community-Based Experience  Service Learning  Both3. \* 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? 

## 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 pgmt?  Yes  No

If YES, explain: \_\_\_\_\_

## 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 <sup>§</sup> for ANY program?  Yes  No

If YES <sup>§</sup>, list affected programs: \_\_\_\_\_

## 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) identify additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See SR

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

<sup>§</sup> Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.  
<sup>§§</sup> The chair of the cross-listing department must sign off on the Signature Routing Log.

- ▣ 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. Laboratory meeting, generally, is two hours per week for a semester for one credit hour. (from SR 5.2.1)
- ▣ You must also submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.
- ▣ In order to change a program, a program change form must also be submitted.

Rev 8/09

**UNIVERSITY OF KENTUCKY  
COLLEGE OF PUBLIC HEALTH  
Department of Biostatistics**

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**Course Syllabus  
CPH 330-001 Health Analytics I  
3 credit hours  
Fall 2015**

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**Location: CPH202**

**Times: Tuesday and Thursday 10:00 – 11:15 AM**

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**Contact information**

Instructor: Heather M Bush  
College of Public Health  
725 Rose Street Rm 301

Telephone: 859-218-2080

E-mail: (Preferred) heather.bush@uky.edu

Office Hours: By Appointment

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**Course description**

CPH 330 focuses on applying methods for solving public health analytical problems. This course will build on the statistical principles and scientific reasoning introduced in introductory statistics courses, but will focus on the application of methods for categorical data analysis. Topics include data visualization, exploratory data analysis, summary statistics, statistical testing, estimation, confounding, and the use of regression models commonly encountered in public health. An emphasis on data analytic methods will also introduce students to the use of statistical software.

**Course rationale**

Using the conceptual knowledge provided for in introductory courses, this course will give students an opportunity to put the analytical methods into practice. With an emphasis on applications, students will have the opportunity to practice basic concepts and expand their analytical skills. The course should

- Extend the conceptual statistical concepts of introductory courses to more advanced topics
- Provide students with a practical foundation for further work in data analytics
- Introduce students to the use of statistical software.

**Course prerequisites**

BPH Majors Only or permission of instructor

Program Outcomes	Course/Student Learning Outcomes
<ul style="list-style-type: none"> <li>• BPH – SLO 1</li> <li>• BPH – SLO 2</li> <li>• BPH – SLO 4</li> </ul>	<p>Students who successfully complete this course will be able to:</p> <ul style="list-style-type: none"> <li>• Recognize good and poor study designs</li> <li>• Explain the influences that science and technology are having on individual and public health</li> <li>• Assess the source and quality of health information data, as related to individual and community health</li> <li>• Apply the basic concepts, methods, and tools of public health data collection, use, and analysis and explain why evidence-based approaches are an essential part of public health practice\</li> <li>• Using appropriate study design, calculate and interpret data using statistical software</li> </ul>

### Tentative\* Schedule of Topics

Date	Lecture Topic	Textbook Reading	What's Due?
Thursday	Statistical Overview and Reminders	CH1	3 Questions/Comments To be completed in class
Tuesday	Continuous Outcomes: Data Visualization	CH3	
Thursday	Continuous Outcomes: Linear Regression refresher	CH3; PG98	
Tuesday	Continuous Outcomes: Diagnostics and Residuals	CH3	
Thursday	Continuous Outcomes: Multiple Linear Regression	CH3; PG118	
Tuesday	Discussion/Data Analysis Lab		3 Questions/Comments (SCA: Multiple Linear Regression)
Thursday	Discussion		
Tuesday	Continuous Outcomes: Multiple Group Studies	CH2; PG73	
Thursday	Continuous Outcomes: Confounding	CH3; PG118	
Tuesday	Continuous Outcomes: Covariate-Adjustments	CH3	
Thursday	Discussion		3 Questions/Comments (SCA: Comparison of adjusted group means)
Tuesday	Lab time for data analysis help		
Thursday	Lab time for data analysis help		
Tuesday	Categorical Outcomes: Summaries	CH4; PG156	
Thursday	Categorical Outcomes: Historical Control Studies	CH4; PG160	Assessment 1
Tuesday	Categorical Outcomes: Measures of Association	CH4; PG181	
Thursday	Categorical Outcomes: Measures of Association	CH4; PG181	3 Questions/Comments (SCA: OR, RR, or PR)

Tuesday	Confounding/Effect Modification	CH5; PG202	
Thursday	Confounding/Effect Modification	CH5; PG202	
	Break – No Classes		
Tuesday	Dichotomous Outcome: Logistic Regression	CH5; PG208	3 Questions/Comments (SCA: Binary Logistic Regression)
Thursday	Dichotomous Outcome: Logistic Regression	CH5; PG208	
Tuesday	Sensitivity, Specificity and ROC Curves	CH5; PG200	
Thursday	Lab time for data analysis help		
Tuesday	Lab time for data analysis help		
Thursday	Count Outcomes: Summaries and Comparisons	CH6; PG234-240	
Tuesday	Survival Outcomes: Definitions and Summaries	CH7; PG270	
Thursday	Survival Outcomes: Comparisons	CH7; PG279	3 Questions/Comments (SCA: Survival Analysis)
Thursday	Date of Final Exam		Assessment 2

\*Please note the schedule is tentative. Any changes will be given to you via the course website.

### **Textbooks and Other Materials**

Textbook: HM Bush. *Biostatistics: An Applied Introduction for the Public Health Practitioner*. Delmar/Cengage 2012.

*Please note this text is required. However, you will not need access to digital materials, so used copies are fine.*

Statistical Software: You will need to access statistical software. You may choose between SAS, SPSS, STATA, R (freeware), and JMP. SAS, SPSS, and JMP are available to you as a UK student but you must get these installed on your computer or find a lab with these software packages. These will be needed for some homework assignments.

### **Course requirements and learner evaluation**

The course will consist of lecture, which will utilize active learning and small group discussion, opportunities to interpret results (verbally and in writing) from statistical analyses and published works.

Course grades will be based upon evaluation of the following activities:

#### **Assignments (20%)**

Weekly assignments will provide students with guided practice with data or practice with concepts. Late or make-up (unexcused) weekly assignments will not be accepted. Since these assignments will likely involve class participation, late or make-up (unexcused) weekly assignments will not be accepted.

#### **Article Review (35%)**

Grades will be based on active participation and submission of the 3 Questions/Comments (3QC) assignments (6 total). Discussion sections will include a critical evaluation of peer-reviewed papers/articles utilizing methods presented in lecture. Students will be expected to come to class prepared with a summary of the paper and at least three questions or critiques/comments (3QCs) pertaining to the methods and statistical concepts related to the article.

The grade for the article review will be equally divided into two parts: a methodological summary and 3QC.

Part 1: A brief **METHODOLOGICAL** summary of the peer-reviewed paper. The summary should be no more than one page. Students will be evaluated on their ability to succinctly provide the most relevant information (sample, research question, outcome, statistical analysis, conclusion) from the article. Students who simply repeat a provided summary or use the abstract will not receive full credit.

Part 2: Three Questions/Comments (3QC): Students will prepare 3 (minimum) questions or comments regarding **methodological** issues in the assigned article. Students should be prepared to present these in class. After class discussion, students will submit these questions/comments along with any notes from the discussion. Late or make-up (unexcused) 3QCs will not be accepted.

**Student Choice Articles (5%):** Students will be asked to provide an electronic copy of an article that relates to the statistical topics for the week. These should be submitted via Canvas with an active link or uploaded file. The description must include a justification for choosing the article to receive full credit. For example, "The article was chosen because the authors compare two groups on a continuous outcome using a two-sample t-test." As these are student choice articles, these should be related to an interest or a field of study specific to each student.

**Assessments (40%)** Developing the skills to utilize biostatistics in public health applications and research requires the ability to communicate statistical ideas. To further develop statistical literacy in public health, students will be expected to complete two assessments which involve the application of biostatistics concepts to public health problems. *Mid-term assessment (20%) and final assessment (20%). Please note that the final assessment is due at the time of the final examination and will serve as the course final. The final assessment is due XXX at XX:XX AM.*

#### **Grading Scale (Percentage)**

100 – 90 = A

89 – 80 = B

79 – 70 = C

69 – 60 = D

0 – 59 = E

#### **Mid-term Grade**

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

#### **Academic honesty**

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](mailto:drc@uky.edu). Their web address is <http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/>.

### **Religious Observances**

Students will be given the opportunity to make up work (typically, exams or assignments) when students notify their instructor that religious observances prevent the student from completing assignments according to deadlines stated in this syllabus. Students must notify the course instructor **at least two weeks prior to such an absence** and propose how to make up the missed academic work.

### **Inclement weather**

The University of Kentucky has a detailed policy for decisions to close in inclement weather. This policy is described in detail at [http://www.uky.edu/PR/News/severe\\_weather.htm](http://www.uky.edu/PR/News/severe_weather.htm) or you can call (859) 257-1754.

### **Late work policy**

Only students with university or instructor excused absences will be allowed to submit late work without penalty. Late work is defined as any work handed in after the scheduled due date and time. Work in this case refers to any assignment submitted to the instructor. It is the student's

responsibility to make arrangements for determining and handing in missed work, preferably in advance, but no later than one week after the excused absence.

### **Attendance policy**

**Lectures:** Although there will be no attendance sheet recorded during lecture, this time is, for many students, the most important time we will spend together. Much will occur during lectures in addition to distributed notes and resources.

**Discussion Sections:** Discussion section attendance is a specific course requirement. Make-ups will only be offered for University-excused absences as defined in the University of Kentucky Bulletin or [www.uky.edu/Ombud/policies.php](http://www.uky.edu/Ombud/policies.php). Please make note that participation in discussion section comprises 20% of your course grade, i.e. you can get a grade a full two letters higher by making this a priority! Please also provide documentation for verification as soon as possible but no later than on return to the following class.

### **Exams:**

Attendance at exams is a specific course requirement. Make-ups will only be offered for University-excused absences as defined in the University of Kentucky Bulletin or [www.uky.edu/Ombud/policies.php](http://www.uky.edu/Ombud/policies.php). Please present document ahead of time when possible. An unexcused absence will result in an exam grade of zero.

### **Excused absences policy**

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](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.