

# Cover Sheet: Request 16118

## PHC 4XXX – Data Visualization in the Health Sciences

### Info

Process	Course New Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Candice Vogtle cvogtle@ufl.edu
Created	4/21/2021 11:37:35 AM
Updated	4/22/2021 11:32:58 AM
Description of request	New course where students will learn the foundations of information visualization and sharpen their skills in understanding, evaluating, and presenting public health data. Throughout the semester, we will primarily use R to explore concepts in graphic design, storytelling, data wrangling and plotting, biostatistics, and artificial intelligence.

### Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	PHHP - Public Health 33000000	George Hack		4/21/2021
No document changes					
College	Approved	PHHP - College of Public Health and Health Professions	Stephanie Hanson		4/22/2021
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			4/22/2021
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

# Course|New for request 16118

## Info

**Request:** PHC 4XXX – Data Visualization in the Health Sciences

**Description of request:** New course where students will learn the foundations of information visualization and sharpen their skills in understanding, evaluating, and presenting public health data. Throughout the semester, we will primarily use R to explore concepts in graphic design, storytelling, data wrangling and plotting, biostatistics, and artificial intelligence.

**Submitter:** Candice Vogtle cvogtle@ufl.edu

**Created:** 5/4/2021 8:45:06 AM

**Form version:** 6

## Responses

### Recommended Prefix

*Enter the three letter code indicating placement of course within the discipline (e.g., POS, ATR, ENC). Note that for new course proposals, the State Common Numbering System (SCNS) may assign a different prefix.*

Response:

PHC

### Course Level

*Select the one digit code preceding the course number that indicates the course level at which the course is taught (e.g., 1=freshman, 2=sophomore, etc.).*

*Note: 5000 level courses must be submitted through the undergraduate new course process*

Response:

4

### Course Number

*Enter the three digit code indicating the specific content of the course based on the SCNS taxonomy and course equivalency profiles. For new course requests, this may be XXX until SCNS assigns an appropriate number.*

Response:

XXX

### Category of Instruction

*Indicate whether the course is introductory, intermediate or advanced. Introductory courses are those that require no prerequisites and are general in nature. Intermediate courses require some prior preparation in a related area. Advanced courses require specific competencies or knowledge relevant to the topic prior to enrollment.*

Response:

Advanced

- 1000 level = Introductory undergraduate
- 2000 level = Introductory undergraduate
- 3000 level = Intermediate undergraduate
- 4000 level = Advanced undergraduate
- 5000 level = Introductory graduate
- 6000 level = Intermediate graduate
- 7000 level = Advanced graduate
- 4000/5000= Joint undergraduate/graduate

• 4000/6000= Joint undergraduate/graduate

*\*Joint undergraduate/graduate courses must be approved by the UCC and the Graduate Council)*

**Lab Code**

*Enter the lab code to indicate whether the course is lecture only (None), lab only (L), or a combined lecture and lab (C).*

Response:

None

**Course Title**

*Enter the title of the course as it should appear in the Academic Catalog. There is a 100 character limit for course titles.&nbsp;*

Response:

Data Visualization in the Health Sciences

**Transcript Title**

*Enter the title that will appear in the transcript and the schedule of courses. Note that this must be limited to 30 characters (including spaces and punctuation).*

Response:

Data Vis in HS

**Degree Type**

*Select the type of degree program for which this course is intended.*

Response:

Baccalaureate

**Delivery Method(s)**

*Indicate all platforms through which the course is currently planned to be delivered.*

Response:

On-Campus

**Co-Listing**

*Will this course be jointly taught to undergraduate, graduate, and/or professional students?*

Response:

No

**Effective Term**

*Select the requested term that the course will first be offered. Selecting "Earliest" will allow the course to be active in the earliest term after SCNS approval. If a specific term and year are selected, this should reflect the*

*department's best projection. Courses cannot be implemented retroactively, and therefore the actual effective term cannot be prior to SCNS approval, which must be obtained prior to the first day of classes for the effective term. SCNS approval typically requires 2 to 6 weeks after approval of the course at UF.*

Response:  
Earliest Available

**Effective Year**

*Select the requested year that the course will first be offered. See preceding item for further information.*

Response:  
Earliest Available

**Rotating Topic?**

*Select "Yes" if the course can have rotating (varying) topics. These course titles can vary by topic in the Schedule of Courses.*

Response:  
No

**Repeatable Credit?**

*Select "Yes" if the course may be repeated for credit. If the course will also have rotating topics, be sure to indicate this in the question above.*

Response:  
No

**Amount of Credit**

*Select the number of credits awarded to the student upon successful completion, or select "Variable" if the course will be offered with variable credit and then indicate the minimum and maximum credits per section. Note that credit hours are regulated by Rule 6A-10.033, FAC. If you select "Variable" for the amount of credit, additional fields will appear in which to indicate the minimum and maximum number of total credits.*

Response:  
3

**S/U Only?**

*Select "Yes" if all students should be graded as S/U in the course. Note that each course must be entered into the UF curriculum inventory as either letter-graded or S/U. A course may not have both options. However, letter-graded courses allow students to take the course S/U with instructor permission.*

Response:  
No

**Contact Type**

*Select the best option to describe course contact type. This selection determines whether base hours or headcount hours will be used to determine the total contact hours per credit hour. Note that the headcount hour options are for courses that involve contact between the student and the professor on an individual basis.*

Response:  
Regularly Scheduled

- Regularly Scheduled [base hr]
- Thesis/Dissertation Supervision [1.0 headcount hr]
- Directed Individual Studies [0.5 headcount hr]
- Supervision of Student Interns [0.8 headcount hr]
- Supervision of Teaching/Research [0.5 headcount hr]
- Supervision of Cooperative Education [0.8 headcount hr]

Contact the Office of Institutional Planning and Research (352-392-0456) with questions regarding contact type.

### Weekly Contact Hours

Indicate the number of hours instructors will have contact with students each week on average throughout the duration of the course.

Response:  
3

### Course Description

Provide a brief narrative description of the course content. This description will be published in the Academic Catalog and is limited to 500 characters or less. See course description guidelines.

Response:  
Students will learn the foundations of information visualization and sharpen their skills in understanding, evaluating, and presenting AI driven public health data. Throughout the semester, we will primarily use R to explore concepts in graphic design, storytelling, data wrangling and plotting, biostatistics, and artificial intelligence.

### Prerequisites

Indicate all requirements that must be satisfied prior to enrollment in the course. Prerequisites will be automatically checked for each student attempting to register for the course. The prerequisite will be published in the Academic Catalog and must be formulated so that it can be enforced in the registration system. Please note that upper division courses (i.e., intermediate or advanced level of instruction) must have proper prerequisites to target the appropriate audience for the course.

Courses level 3000 and above must have a prerequisite.  
Please verify that any prerequisite courses listed are active courses.

Response:  
STA 2023 Introduction to Statistics or equivalent

Completing Prerequisites on UCC forms:

- Use “&” and “or” to conjoin multiple requirements; do not use commas, semicolons, etc.
- Use parentheses to specify groupings in multiple requirements.
- Specifying a course prerequisite (without specifying a grade) assumes the required passing grade is D-. In order to specify a different grade, include the grade in parentheses immediately after the course number. For example, “MAC 2311(B)” indicates that students are required to obtain a grade of B in Calculus I. MAC2311 by itself would only require a grade of D-.
- Specify all majors or minors included (if all majors in a college are acceptable the college code is sufficient).
- “Permission of department” is always an option so it should not be included in any prerequisite or co-requisite.
- If the course prerequisite should list a specific major and/or minor, please provide the plan code for that major/minor (e.g., undergraduate Chemistry major = CHY\_BS, undergraduate Disabilities in Society minor = DIS\_UMN)

*Example: A grade of C in HSC 3502, passing grades in HSC 3057 or HSC 4558, and undergraduate PBH student should be written as follows: HSC 3502(C) & (HSC 3057 or HSC 4558) & UGPBH &nbsp;*

### **Co-requisites**

*Indicate all requirements that must be taken concurrently with the course. Co-requisites are not checked by the registration system. If there are none please enter N/A.*

Response:  
N/A

### **Rationale and Placement in Curriculum**

*Explain the rationale for offering the course and its place in the curriculum.*

Response:  
AI models can have high accuracy in prediction but, if model variables are intervened upon, e.g. testing a new risk-reducing public health policy, they can produce ineffective or even harmful outcomes. This course aims to combine AI knowledge with data visualization techniques applicable to health data and used in various health settings. Students with these skills will be more prepared to use AI to inform interventions and consult with health care providers and public health professionals about data analysis.

### **Course Objectives**

*Describe the core knowledge and skills that student should derive from the course. The objectives should be both observable and measurable.*

Response:  
1) Implement functions in R, RStudio, and R Markdown to create displays of health data.  
2) Construct data displays that express the meaning of public health and health science data.  
3) Point out graphical elements that are useful for assessing graphical excellence and integrity.  
4) Use visualizations to aid in the presentation of scientific health data to a diverse audience.  
5) Recommend the best types of data visualizations to use for common data types in public health contexts.

### **Course Textbook(s) and/or Other Assigned Reading**

*Enter the title, author(s) and publication date of textbooks and/or readings that will be assigned. &nbsp;&nbsp;&nbsp;Please provide specific examples&nbsp;&nbsp;&nbsp;to evaluate the course and identify required textbooks.&nbsp;&nbsp;&nbsp;*

Response:  
  
a. Tufte, E. R. (2001). The visual display of quantitative information (Vol. 2). Cheshire, CT: Graphics press. ISBN-13: 978-1930824133 (VDQI)

### **Weekly Schedule of Topics**

*Provide a projected weekly schedule of topics. This should have sufficient detail to evaluate how the course would meet current curricular needs and the extent to which it overlaps with existing courses at UF.*

Response:  
Week Date(s) Topic(s) Readings  
1 1/11 Introduction to Data Visualization Syllabus  
2 1/18 Making Health Data more Meaningful, Part 1  
3 1/25 Making Health Data more Meaningful, Part 2

- 4 2/1 Getting Started in R
- 5 2/8 Introduction to RMD & Prog. Basics
- 6 2/15 Handling Health Data and Data Verbs, Part 1
- 7 2/22 Handling Health Data and Data Verbs, Part 2
- 8 3/1 Basic Plotting, Part 1
- 9 3/8 Basic Plotting, Part 2
- 10 3/15 Theory of Data Graphics, Part 1
- 11 3/22 Theory of Data Graphics, Part 2
- 12 3/29 Enhancing Plots
- 13 4/5\* Displaying Data Over Time
- 14 4/12 Creating Maps with Health Data
- 15 4/19 Visuals for Modelling Health Data and AI

### **Grading Scheme**

*List the types of assessments, assignments and other activities that will be used to determine the course grade, and the percentage contribution from each. This list should have sufficient detail to evaluate the course rigor and grade integrity. Include details about the grading rubric and percentage breakdowns for determining grades. If participation and/or attendance are part of the students grade, please provide a rubric or details &nbsp;regarding how those items will be assessed.*

Response:  
Skills and Readiness Checks (10%)  
Homework (40%)  
Data Challenge Group Project (20%)  
2 Data Visualization Reviews (15% each, 30% total),

### **Instructor(s)**

*Enter the name of the planned instructor or instructors, or "to be determined" if instructors are not yet identified.*

Response:  
Steven Foti, PhD

### **Attendance & Make-up**

*Please confirm that you have read and understand the University of Florida Attendance policy. A required statement related to class attendance, make-up exams and other work will be included in the syllabus and adhered to in the course. Courses may not have any policies which conflict with the University of Florida policy. The following statement may be used directly in the syllabus.*

*• Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:  
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.*

Response:  
Yes

### **Accommodations**

*Please confirm that you have read and understand the University of Florida Accommodations policy. A statement related to accommodations for students with disabilities will be included in the syllabus and adhered to in the course. The following statement may be used directly in the syllabus:*

*• Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation.*

Students with disabilities should follow this procedure as early as possible in the semester.

Response:

Yes

### **UF Grading Policies for assigning Grade Points**

Please confirm that you have read and understand the University of Florida Grading policies. Information on current UF grading policies for assigning grade points is require to be included in the course syllabus. The following link may be used directly in the syllabus:

- <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Response:

Yes

### **Course Evaluation Policy**

*Course Evaluation Policy*

Please confirm that you have read and understand the University of Florida Course Evaluation Policy. A statement related to course evaluations will be included in the syllabus. The following statement may be used directly in the syllabus:

• Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/public-results/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

&nbsp;

Response:

Yes