

## Cover Sheet: Request 16119

### PHC 3XXX – Ethics in Artificial Intelligence: Who’s Protecting Our Health

#### Info

Process	Course New Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Candice Vogtle cvogtle@ufl.edu
Created	4/21/2021 12:02:26 PM
Updated	4/22/2021 9:11:56 AM
Description of request	New course exploring the ethical challenges of using artificial intelligence in Healthcare and the practice of Public Health. Students will examine predictive models used for making important health decisions, addressing factors that contribute to trustworthy artificial intelligence in health, and analyzing potential for bias, risk, and social inequity

#### Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	PHP - Public Health 33000000	George Hack		4/21/2021
No document changes					
College	Approved	PHP - 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 16119

## Info

**Request:** PHC 3XXX – Ethics in Artificial Intelligence: Who’s Protecting Our Health

**Description of request:** New course exploring the ethical challenges of using artificial intelligence in Healthcare and the practice of Public Health. Students will examine predictive models used for making important health decisions, addressing factors that contribute to trustworthy artificial intelligence in health, and analyzing potential for bias, risk, and social inequity

**Submitter:** Stephanie Hanson shanson@phhp.ufl.edu

**Created:** 4/22/2021 9:11:35 AM

**Form version:** 4

## 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:

3

### 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:

Intermediate

- 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:

Ethics in Artificial Intelligence: Who's Protecting Our Health

**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:

Ethics in AI Protect Health

**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, Online

**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:  
Fall

**Effective Year**

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

Response:  
2021

**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:  
Explores the ethical challenges of using artificial intelligence in Healthcare and the practice of Public Health. Students will examine predictive models used for making important health decisions, addressing factors that contribute to trustworthy artificial intelligence in health, and analyzing potential for bias, risk, and social inequity in assessing and delivering health and public health interventions.

### 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:  
PHC 3XXX Higher Thinking for Healthy Humans: AI in Healthcare and Public Health

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 is falling short in improving public and individual health and ensuring health equity. Yet, big data computing and machine learning are increasingly noted as key to biomedical modelling, improving population health, and progressing health professions. One of the main goals of AI for healthcare and public health is to be 'interventional' in addition to predictive, i.e. being able to learn data-driven models that can evaluate different what-ifs, or actionable strategies, like prevention, risk mitigation, and public health policy changes. Unfortunately, biomedical, environmental, and public health surveillance data are not 'fair,' in the sense that they are littered with many kinds of bias, arising in various steps of the data generation or collation process, e.g. confounding, selection, indication, or information bias. Such bias often cannot be automatically detected, and currently AI methods alone are not yet well-equipped to deal with it. The presence of confounding bias, for instance, can hinder model learning processes and lead to inclusion of non-causal variables spuriously correlated to the true ones. As a result, 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. In this course, students will learn the foundational bioethical principles that need to be upheld in AI applications in health care and the practice of public health. They will learn to recognize biases leading to potentially harmful outcomes and safeguards to ensure ethical AI applications. Students with these skills be more prepared to use AI to inform interventions, to improve health, and reduce health disparities, thus enabling more trustworthy, equitable, and ethical public policy and health decisions.

### **Course Objectives**

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

Response:

- Discuss justice, social responsibility, and beneficence as they relate to artificial intelligence in healthcare and public health
- Explain the implications of the proliferation of artificial intelligence in healthcare and public health so that impacts upon human health are addressed
- Characterize the threats and safeguards that contribute to the trustworthiness of artificial intelligence applications in healthcare and public health (data integrity, internal/external checks, safety, transparency, accountability structures, human influences upon reliable outputs, etc.)
- Outline the factors that influence equity/disparity in the implementation of artificial intelligence applications in healthcare and public health (data fairness, design fairness, outcome fairness)
- Compare and contrast protocols, policies, and practices related to artificial intelligence applications in healthcare and public health so that their effectiveness for safeguarding against ethical violations are addressed

- Give examples of ethical violations of artificial intelligence applications in healthcare and public health that have had negative impacts
- Discuss the various roles (health data scientists, product managers, data engineers, domain experts, delivery managers, etc) associated with artificial intelligence implementation in healthcare and public health so that their responsibilities related to ethical considerations are addressed

### 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:

Coeckelbergh, M. (2020) AI Ethics. The MIT Press. Cambridge, Massachusetts. ISBN - 9780262538190

Additional required readings

Posted within each module on the Canvas course website. Readings are also listed in the topical outline/course schedule table above.

### 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) and Objectives

1 August 24, 26 Syllabus Discussion and Development of Course Ground Rules:

Artificial Intelligence and Ethics for Healthcare and Public Health

2 August 31, September 2 Health, Superintelligence, and the AI Apocalypse

3 September 7, 9 The Human/Computer Relationship

4 September 14, 16 Who Doesn't Want to Live Longer? ---Artificial Intelligence Applications for Healthcare and Public Health

5 September 21, 23 Garbage In --- Garbage Out

6 September 28, 30 The Usual Suspects and Privacy Protection for Vulnerable Populations facing Health Issues

7 October 5, 7 Safety Doesn't Happen By Accident

8 October 12, 14 Agency and the Moral Dilemma:

9 October 19, 21 Don't Go Behind the Curtain – Explainable AI in Public Health and Healthcare:

10 October 26, 28 Looking in the Mirror --- Bias in the Machine:

11 November 2, 4 Tyranny over the Ingenuous --- Policy, Process, and Responsible AI:

12 November 9, (No class November 11) Exam

13 November 16, 18 The Utopian Influence over the Dystopia:

14 November 23 (No class November 25) AI Health Application Pitch Presentations:

15 November 30 & December 3 AI Health Application Pitch Presentations:

16 December 7 Course Wrap Up

### 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;&nbsp;&nbsp;regarding how those items will be assessed.*

Response:

Requirement Due Date Points (% of final grade)

Weekly Quizzes 8AM on Tuesdays 20 points (20% of final grade)

Weekly Class Assignments 5PM on Fridays 20 points (20% of final grade)

Exam November 9 in class 20 points (20% of final grade)

Critical Assessment Paper Final Submission December 7 at 5PM 30 points (30% of final grade)

AI Health Application Pitch Presentation In class on November 23, 30, and December 3 10 points  
(10% of final  
grade)

**Instructor(s)**

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

Response:  
George Hack, PhD, MEd

**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

**Accomodations**

*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