

Department Name and Number _____

Recommended SCNS Course Identification

Prefix ____ Level ____ Course Number ____ Lab Code ____

Full Course Title _____

Transcript Title (please limit to 21 characters) _____

Effective Term and Year _____ Rotating Topic yes no

Amount of Credit ____ Contact Hour: Base ____ or Headcount ____ S/U Only yes no

Repeatable Credit yes no If yes, ____ total repeatable credit allowed

Variable Credit yes no If yes, ____ minimum and ____ maximum credits per semester

Course Description (50 words or less)

Prerequisites	Co-requisites
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Degree Type (mark all that apply) Baccalaureate Graduate Professional Other _____

Category of Instruction Introductory Intermediate Advanced

Rationale and place in curriculum

Department Contact	Name	Phone	Email
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College Contact	Name	Phone	Email
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All UCC1 forms and each UCC2 form that proposes a change in the course description or credit hours must include this checklist in addition to a complete syllabus. Check the box if the attached syllabus includes the indicated information.

Syllabus MUST contain the following information:

- X Instructor contact information (and TA if applicable)
- X Course objectives and/or goals
- X A weekly course schedule of topics and assignments
- X Required and recommended textbooks
- X Methods by which students will be evaluated and their grades determined
- X A statement related to class attendance, make-up exams and other work such as: "Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>."
- X A statement related to accommodations for students with disabilities such as: "Students requesting classroom accommodation must first register with the Dean of Student Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation."
- X Information on current UF grading policies for assigning grade points. This may be achieved by including a link to the appropriate undergraduate catalog web page <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.
- X A statement informing students of the online course evaluation process such as: "Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>."

It is recommended that syllabi contain the following information:

1. Critical dates for exams and other work
2. Class demeanor expected by the professor (e.g., tardiness, cell phone usage)
3. UF's honesty policy regarding cheating, plagiarism, etc. Suggested wording: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.
4. Phone number and contact site for university counseling services and mental health services: 392-1575, <http://www.counseling.ufl.edu/cwc/Default.aspx>
University Police Department: 392-1111 or 9-1-1 for emergencies.

The University's complete Syllabus Policy can be found at:
http://www.aa.ufl.edu/Data/Sites/18/media/policies/syllabi_policy.pdf

Clinical Applications of Pharmacogenomics Grading Rubric

DATE: _____

Student Name: _____

Grading Scale: 5 (strongly agree) 4 (agree) 3 (neutral) 2 (disagree) 1 (strongly disagree)

Criteria: Score Notes

PATIENT PRESENTATION/ASSESSMENT

Included appropriate discussion of the patient's disease states		
Included appropriate discussion of the patient's current drug therapy		
Included appropriate interpretation of patient's genotype results		
Summarized clinical implications of patient's genotype results		
Assessment demonstrated student's understanding of the subject matter		
Assessment was clearly communicated		

PATIENT PLAN

Plan reflects patient's genotype results		
Plan considers patient's other disease states and/or drug therapy		
Plan includes appropriate suggestions for drug therapy/other changes		
Plan is supported by evidence-based reasoning		

Score /50

PHA [5XXX] Clinical Applications of Pharmacogenomics

Fall A 2014

1 Semester Credit Hour

Course Purpose:

Pharmacogenomics is the study of genetic variation associated with drug response, adverse drug events, and disease outcomes related to drug treatment. This course will focus on how pharmacogenomics can be used in patient care. Students will be given the opportunity to have their personal DNA genotyped on a custom chip, and utilize this information for the class assignments. Alternatively students may work with a de-identified genotype dataset. This course will use a combination of interprofessional lectures, and case-based discussions of clinical pharmacogenetic guidelines and primary literature. The goal of this course is to provide health professional students with the knowledge and skills to use pharmacogenomic information in their future clinical practice in an interprofessional learning environment.

Course Faculty and Office Hours

Course Coordinator:

Kristin Weitzel, PharmD, CDE, FAPhA

Associate Director, UF Health Personalized Medicine Program

Clinical Associate Professor, Pharmacotherapy and Translational Research

Email: kweitzel@cop.ufl.edu Office: MSB PG-21

Phone: 352-273-5114

Co-Coordinator:

Caitrin McDonough, PhD

Research Assistant Professor, Pharmacotherapy and Translational Research

Email: cmcdonough@cop.ufl.edu Office: MSB PG-05B

Phone: 352-273-6435

Office Hours

By appointment only.

Contact information for other faculty and lecturers in this course is included in **Appendix A**.

Place and Time of Class Sessions

This is an online class. Interactive class sessions will be conducted once weekly via webinar, day and time to be determined.

How This Course Relates to the Learning Outcomes You Will Achieve in the Pharm.D. Program:

This course prepares the Pharm.D. student to accomplish the following abilities and the related Student Learning Outcomes (SLOs) upon graduation:

- **2.1. Patient-centered care (Caregiver)** - Provide patient-centered care as the medication expert (collect and interpret evidence, prioritize patient needs, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities).
- **3.1. Problem Solving (Problem Solver)** – Identify and assess problems; explore and prioritize potential strategies; and design, implement, and evaluate the most viable solution.
- **3.4. Interprofessional collaboration (Collaborator)** – Actively participate and engage as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs.

Course Objectives

Upon completion of this course, the student will:

1. Explain risks involved with pharmacogenetic testing.
2. Interpret and apply evidence from the pharmacogenomics medical literature and CPIC guidelines.
3. Apply personal or de-identified genetic information to clinical decision-making for representative cases using the following pharmacogenomic drug-gene pairs:
 - a. CYP2D6 and Codeine
 - b. Clopidogrel & CYP2C19
 - c. SLCO1B1 and Simvastatin
 - d. CYP2C9, VKORC1 and Warfarin
 - e. TPMP and Thiopurines
 - f. IL28B and PEG-IFN
4. Demonstrate the contributions and roles of other health care professionals in the clinical application of genomic information to patient care.
5. Summarize the challenges and opportunities of implementing pharmacogenomic testing.

Pre-Requisite Knowledge and Skills

For student pharmacists, successful completion of 1PD and 2PD coursework is required to take this course.

Course Structure & Outline

Course Structure. The course consists of weekly web-based assignments and lectures (1 hour per week), and weekly live, web-based interactions with instructors and students (via webinar, video conferencing; 1 hour per week). The student must complete some self-directed pre-requisite learning activities, assignments, and quizzes before the live, web-based interactions each week. For live, web-based interactions, students will be periodically assigned to present and discuss content in “class” (e.g. answers to cases, questions, reflections on assignments). These assignments will occur in such a way as to give an equal number of opportunities for individual students to present and the lowest “presentation” grade will be dropped.

This course will be offered during the **first 8 weeks** of the Fall semester, and may be taken alone, or in conjunction with PHA 5XXXX Clinical Applications of Genomic Medicine (offered during the second 8 weeks of the Fall semester).

Course Outline/Activities. The outline of course activities is listed in **Appendix B**.

Textbooks

There is no required text. The instructor will provide any required reading.

Active Learning Requirements

For all learning experiences in this course, including lectures, reading assignments, cases and discussions, students are expected to actively engage in the learning process, striving to comprehend the meaning and relevance of all transmitted concepts and facts. Students should strive to discover deficiencies in their understanding, and attempt to resolve those deficiencies by any of several means, including through their own research (a recommended first step) and through consultation with fellow students and course instructors.

1. Lectures: Lectures will require completion of integrated quizzes, questions, reflection, feedback, and/or other assignments to ensure that students are actively engaging in the material and integrating it with their existing knowledge base.
2. Cases and Discussions: Attending and participating in cases and discussions are active learning processes in this course. Students are expected to actively participate in discussions and case-based learning, and communicate the concepts and ideas that they have learned in the lectures and are applying in this class.
3. Reading Assignments: Reading assignments will require completion of integrated quizzes, questions, reflection, feedback, and/or other assignments to ensure students are actively engaging in the reading assignments, and understand the objectives and concepts that are in the reading assignments.

Feedback to Students

Feedback will be provided through written comments and grading on patient cases, assignments, a quiz, and through online and live class participation assessments.

Student Evaluation & Grading

Evaluation Methods

Students will receive grades for submitted and presented cases and for participation in the case discussion sessions. Each student's grade will be based on their individual performance; assessment will also be done individually by each faculty member participating in the course.

There will be one quiz during the course, which will be administered online. The quiz will cover material reviewed in the case discussions and assigned readings/lectures.

The course grade will be determined as follows:

Attendance	15%
Patient Cases	45%
Quiz	25%
Participation in cases and web-based assignments	15%
Total	100%

Grading Scale

95-100 = A	90-94 = A-
86-89 = B+	83-85 = B
80-82 = B-	76-79 = C+
73-75 = C	70-72 = C-
66-69 = D+	63-68 = D
60-62 = D-	<60 = E

Class Attendance Policy

Attendance for live, web-based sessions is required. Students will learn more from this course by attending these sessions and participating in the discussions. A student may have one unexcused absence with no penalty in the course. If a student has two to four unexcused absences, he/she will receive a reduction in the attendance portion of the grade: two unexcused absences = 20% reduction (3% reduction in the final grade), three unexcused absences = 35% reduction (5.25% reduction in the final grade), and four unexcused absences = 50% reduction (7.5% reduction in the final grade). If a student has five or more unexcused absences, he/she will receive zero points for attendance, resulting in a 15% reduction in the final grade. Requests for excused absences should be directed to the course coordinator by email as early as possible in the course and will be handled on an individual basis. Examples of excused absences include: illness, death in the family, religious holiday. These should be made BEFORE the session that will be missed, if possible. Attendance will be monitored at live, web-based sessions via participation and log-in confirmation on the webinar platform. Students with excused absences will be required to watch a recording of the live, web-based session they missed, and provide a written summary of it to the course coordinator.

Exam Policy

The quiz will be a take-home quiz and will be 25% of the overall grade. The quiz will be very similar to the in-class cases and discussion questions and will be “open book.” Further description of the quiz can be found in **Appendix D**.

Make-up Quiz/Exam Policy

Students who miss the quiz due to unforeseeable circumstances, such as illness, family emergency, or death in the family should personally report this to the course coordinator PRIOR to the administration of the quiz. Appropriate and verifiable documentation of the need to miss the quiz will be required. Please note that circumstances other than these will be evaluated on an individual basis but notification PRIOR to the quiz is still required. A make-up quiz (essay format) will be provided to the student at a reasonable time, as established by the course coordinator. Only in extreme circumstances will the make-up quiz be administered more than two weeks after the scheduled quiz.

Policy on Old Assignments and Quizzes

Students are not provided old assignments or quizzes.

Assignment Deadlines

Assignment deadlines are listed in **Appendix C**.

Optional Personal Genotyping for Pharmacogenetic SNPs

As part of this course, students will be given the opportunity to have a small portion of their personal DNA genotyped and to apply this information in the case assignments. Any student who does not feel comfortable using their personal genetic information may work with a de-identified genetic dataset for the cases. There will be no penalty for choosing not to use personal genetic information. Course faculty will be blinded to which students use their own data and which use a de-identified dataset. For additional information on the genotyping procedure and consent, see **Appendix F**.

General College of Pharmacy Course Policies

The College of Pharmacy has a website that lists course policies that are common to all courses. This website covers the following:

1. University Grading Policies
2. Academic Integrity Policy
3. How to request learning accommodations
4. Faculty and course evaluations
5. Student expectations in class
6. Discussion board policy
7. Email communications

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8. Religious holidays
 9. Counseling & student health
 10. How to access services for student success
 11. Faculty Lectures/Presentations Download Policy

Please see the following URL for this information:

<http://www.cop.ufl.edu/wp-content/uploads/dept/studaff/policies/General%20COP%20Course%20Policies.pdf>

Complaints

Should you have any complaints with your experience in this course please contact your course coordinator. If unresolved, contact the COP Senior Associate Dean-Professional Affairs. For unresolved issues, see:

<http://www.distancelearning.ufl.edu/student-complaints> to submit a complaint.

Other Course Information

Appendix A: Directions for contacting faculty and instructors

Appendix B: Schedule of course activities/topics

Appendix C: Schedule of readings and quiz

Appendix D: Description of cases and quiz

Appendix E: Grading Rubrics

Appendix F: Genotyping Informed Consent Document

Appendix A: Directions for Contacting Faculty & Course Faculty List

Directions for Contacting Course Faculty

Questions regarding the readings, course content, and lecture content should be brought up during the live, web-based sessions or on the online course discussion board.

Questions regarding the course in general or other personal matters should be sent to Dr. Weitzel and Dr. McDonough.

Course Coordinator

Kristin Weitzel, PharmD, CDE, FAPhA

Associate Director, UF Health Personalized Medicine Program

Clinical Associate Professor, Pharmacotherapy and Translational Research

Email: kweitzel@cop.ufl.edu Office: MSB PG-21

Phone: **352-273-5114**

Course Co-Coordinator

Caitrin McDonough, PhD

Research Assistant Professor, Pharmacotherapy and Translational Research

Email: cmcdonough@cop.ufl.edu Office: MSB PG-05B

Phone: 352-273-6435

Instructors

Kristin Weitzel, PharmD, CDE, FAPhA, kweitzel@cop.ufl.edu

Caitrin McDonough, PhD, cmcdonough@cop.ufl.edu

(Others instructors to be determined)

Appendix B. Schedule of Course Activities/Topics

Week	Live Interaction Date	Instructor(s)	Lecture Topic	Live Web-Based Interaction
1			Bioethics and Informed Consent	Informed Consent and Risks of Personal Genetic Testing
2			Pharmacogenomics and Pharmacogenomic Studies	Evaluating Pharmacogenomic Literature: A Pharmacogenomic Clinical Tests vs. A Pharmacogenomic Research Study
3			PharmGKB and CPIC Guidelines	Using CPIC Guidelines in Clinical Practice
4			Pharmacogenomics of CYP2D6	Student Case Presentations: CYP2D6 and Codeine
5			Cardiovascular Pharmacogenomics	Student Case Presentations: CYP2C19 and Clopidogrel SLCO1B1 and Simvastatin
6			Randomized Controlled Trials in Pharmacogenomics: What level of evidence is appropriate?	Student Case Presentations: CYP2C9, VKORC1 and Warfarin
7			Pharmacogenomics of TPMT and IL28B	Student Case Presentations: TPMT and Thiopurines IL28B and PEG-IFN
8			Implementing Pharmacogenomic Testing in an Academic Health System	Clinical Implementation: Challenges and Opportunities

Appendix C. Schedule of readings and quiz

Week	Lecture Topic	Live Web-Based Interaction	Readings, Due Dates
1	Bioethics and Informed Consent	Informed Consent and Risks of Personal Genetic Testing	Readings
2	Pharmacogenomics and Pharmacogenomic Studies	Evaluating Pharmacogenomic Literature: A Pharmacogenomic Clinical Tests vs. A Pharmacogenomic Research Study	Readings
3	PharmGKB and CPIC Guidelines	Using CPIC Guidelines in Clinical Practice	Readings
4	Pharmacogenomics of CYP2D6	Student Case Presentations: CYP2D6 and Codeine	Readings
5	Cardiovascular Pharmacogenomics	Student Case Presentations: CYP2C19 and Clopidogrel SLCO1B1 and Simvastatin	Readings
6	Randomized Controlled Trials in Pharmacogenomics: What level of evidence is appropriate?	Student Case Presentations: CYP2C9, VKORC1 and Warfarin	Readings
7	Pharmacogenomics of TPMT and IL28B	Student Case Presentations: TPMT and Thiopurines IL28B and PEG-IFN	Readings
8	Implementing Pharmacogenomic Testing in an Academic Health System	Clinical Implementation: Challenges and Opportunities	Readings QUIZ

Appendix D. Description of cases and quiz

Cases: Pharmacogenomic patient cases will be used throughout the course as assignments and to facilitate application of knowledge. Each case will include 3-5 questions. Students will be periodically assigned to present answers to the case during the live, web-based sessions. Students will also submit written answers for each case. The grade for the cases will be based on both the written cases, and the cases that the student presented, and will be worth 45% of the total course grade. For most of the cases, students will have the opportunity to use their own genetic information or de-identified information.

Quiz: Students will be given a theoretical genetic data set for a family. Using this information and the information covered in the course, students will answer a series of questions covering pharmacogenomics, and make the best recommendations for members of the family, based on their genetic information.

Appendix E. Grading Rubric for Student Case Presentations

The draft grading rubric is included as a separate attachment, but will be integrated into syllabus once finalized.

Appendix F. Personal Genotyping of Pharmacogenetic SNPs Informed Consent

The consent document has to undergo IRB approval, which is in progress. When completed, it will be included here.