FLORIDA

ATLANTIC

Department

NEW COURSE PROPOSAL

UFS Approval	
SCNS Submittal _	

UGPC Approval _____

Confirmed _____

Banner _____

College

UNIVERSITY Catalog ___ (To obtain a course number, contact erudolph@fau.edu) (L = Lab Course; C = **Prefix Type of Course Course Title** Combined Lecture/Lab: add if appropriate) Lab Number Code Credits (Review Grading Course Description (Syllabus must be attached; see Guidelines) **Provost** Memorandum) (Select One Option) Regular **Effective Date** (TERM & YEAR) Sat/UnSat **Prerequisites Academic Service Learning (ASL) course** Academic Service Learning statement must be indicated in syllabus and approval attached to this form. **Registration Controls** (For Corequisites example, Major, College, Level) Prerequisites, Corequisites and Registration Controls are enforced for all sections of course. Minimum qualifications needed to teach List textbook information in syllabus or here course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.) Faculty Contact/Email/Phone List/Attach comments from departments affected by new course

Approved by	1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Date
Department Chair	Jant D Robohaw Marc Kantorow	 3/8/2022
College Curriculum Chair	Marc Kantorow	3/3/2022
College Dean	Julie Hitches	 3/8/2022
UGPC Chair ————		
UGC Chair ————		
Graduate College Dean		
UFS President		
Provost		

Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.



Course Description

The content covers the rapidly evolving applications of genomics to cancer diagnosis and treatment, and pharmacogenomics, exploring how natural genetic variation impacts human health, susceptibility to disease and the development of targeted treatments.

Additional Course Information: In each context, the clinical applications are discussed along with the ethical, social, and legal challenges. To reveal how knowledge of genomics can be leveraged to improve patient care, students may choose to have their personal DNA genotyped or work with a de-identified dataset to complete class assignments. To maximize content acquisition and practical application, each session uses a blended learning format by combining didactic lectures, case-based discussions, and interactive sessions using clinical guidelines and primary literature.

This graduate level course builds on the first course in the Genomics and Predictive Health certificate program, and is taught by faculty leaders in genomics, precision medicine, and predictive health. Ultimately, completion of this course extends the foundational knowledge to highly relevant current applications of genomics, leading to the *Genomics and Predictive* Health certificate.

Textbook

illness.

No required textbook

Computer Access

It is required that all students have computer access, and it is strongly recommended that they have a computer camera and microphone to improve the quality of instruction and peer interactions if remote access is needed due to disease exposure or

COVID-19 Statement

Due to the surge in COVID-19 cases and the omicron variant, all students regardless of vaccination status are expected to wear masks while indoors in any FAU facilities, including classrooms and laboratories. Students experiencing flu-like symptoms (fever, cough, shortness of breath) or students who have come in contact with confirmed positive cases of COVID-19 should immediately contact FAU Student Health Services (561-297-3512). Symptomatic students will be asked to leave the classroom to support the safety and protection of the university community. For additional information visit www.fau.edu/coronavirus. In classes with face-to-face components, quarantined students should notify us immediately as you will not be able to attend class. We will not be able to offer an online version of the class but will make reasonable efforts to assist students in making up the work.

NOTE: Instructors will monitor the need for online teaching and may use additional software tools, including CANVAS, ZOOM, recordings, as desired. Students will be notified of potential changes at least 1 hour prior to class via their official FAU email address.

Instructional Method

This course is taught as in person. Students will receive a blended learning format, including didactic lectures, assigned readings, critical review of primary literature, and awareness of how this knowledge is presented in popular press. To gain a better understanding of challenges and opportunities in this exciting area, students will also hear from scientists or clinicians that work at the forefront of precision medicine. For assessment, students will demonstrate a comprehensive understanding of the material through class attendance and participation, homework assignments, journal article presentations, and formal testing. Throughout the course, the instructors are available for questions via posted office hours.

Prerequisites/Co-requisites

Successful completion of the Capstone Course "Genomics and Predictive Health".

Course Objectives/Student Learning Outcomes

Guided by scientists and/or clinicians working at the forefront of precision medicine, students will gain a better understanding of the emerging uses of genomics in cancer diagnosis and treatment, and the implications of genomics in drug treatment decisions and dosing. Students will:

- 1. Learn that cancer is a genetic disease
- 2. Understand the differences between germline and somatic mutations in the development and evolution of cancers
- 3. Develop an understanding of genetic testing and tumor profiling for cancer diagnosis
- 4. Understand the different types of cancer treatments and the development of resistance
- 5. Understand the basic pharmacokinetic and pharmacodynamic principles
- 6. Interpret and synthesize evidence from the pharmacogenomics literature and CPIC guidelines.
- 7. Leverage personal or de-identified genetic information for clinical decision-making based on validated pharmacogenomic drug-gene pairs
- 8. Summarize the challenges and opportunities of implementing pharmacogenomic testing.

Course Evaluation Method

The grade in this course will reflect the following components: (1) Attendance, 10%; (2) Examinations, 40%; (3) Literature Discussions/Presentations, 20%; and (4) Application Projects, 30%.

Examinations: There will be two examinations during the semester, and a final examination at the course conclusion. Each exam will contain objective multiple-choice and short-answer questions, to assess your command of the material that was covered in a particular unit.

Journal Club and cBioPortal Presentations: There will be a combined assessment to objectively gauge your ability to critically read primary literature and synthesize concepts into evidence-based insights. This will incorporate the following components: (1) Reading and Applications Assessment that assess your understanding and synthesis of the assigned reading material; (2) Oral presentations that will test your knowledge, organization, and communication skills; and (3) Class participation that will assess your engagement, critical thinking and teamwork (20%).

Application Projects: There will be two projects that apply what you have learned to create visionary clinical application(s) in the fields of oncogenomics and pharmacogenomics (30%).

Course Grading Scale

A (94-100%), A- (90-93), B+ (87-89%) B (84-86), B- (80-83), C+ (77-79), C74-76), C- (70-73), D+ (67-69), D (64-67), D- (61-63), F (0-60)

Policy on Makeup Tests, Late Work, and Incompletes

Students should make every attempt to attend all classes and submit all required work by the deadline. Extenuating circumstances, including but not limited to participation in University-approved activities, religious observances, and personal or family health issues will be accommodated. Grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances.

Special Course Requirements

Students can participate in an optional opportunity to have their genome analyzed through 23andMeTM, and will use this data during course exercises. Students who choose not to participate will be provided de-identified datasets for such exercises.

Attendance Policy

Students are expected to attend all scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three

of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edw/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards because it interferes with the university mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see *University Regulation 4.001*.

Course Topical Outline

The course includes a breakdown of topics covered (generally, by class day or by week), deadlines for course assignments/requirements, and dates of exams, quizzes, papers, and completion of readings, including whether in person and/or synchronous remote instruction.

Part 1: Personal Genotyping and Bioethical Considerations

JANUARY 11, 2022 Informed Consent (Krasnoff)

Part 2: Oncogenomics

JANUARY 13, 2022	Introduction to Oncogenomics (Grant)
JANUARY 14, 2022	LAST DAY TO DROP/ADD
JANUARY 18, 2022	Cancer as a Genetic Disease (Grant)
JANUARY 20, 2022	Genetic Testing in Cancer (Grant)
JANUARY 25, 2022	Journal Club #1: Hereditary Cancer Syndromes
JANUARY 27, 2022	cBioPortal Orientation (Grant)
FEBRUARY 1, 2022	cBioPortal Presentations
FEBRUARY 3, 2022	Epigenetic Regulation in Cancer (Grant)
FEBRUARY 8, 2022	Journal Club #2: Epigenetics in Cancer
FEBRUARY 10, 2022	Precision Oncology (Grant)
FEBRUARY 15, 2022	Journal Club #3: Monoclonal antibodies in cancer treatment
FEBRUARY 17, 2022	Treatments, Drug Resistance, and Combination Therapies (Grant)
FEBRUARY 22, 2022	PROJECT #1: Presentations
FEBRUARY 24, 2022	PROJECT #1: Presentations cont.
MARCH 1, 2022	TEST #1: ONCOGENOMICS

Part 3: Pharmacogenomics

MARCH 3, 2022	Pharmacokinetic and Pharmacodynamic Principles (Robishaw)
MARCH 5-11, 2022	Spring Break
MARCH 15, 2022	Biomarkers (Robishaw)
MARCH 17, 2022	Genomics Datasets and Emerging Applications (Robishaw)
MARCH 22, 2022	Case Scenarios with Validated Drug-Gene Pairs (Robishaw)
MARCH 24, 2022	Journal Club# 4:
MARCH 29, 2022	Case Scenarios with Validated Drug-Gene Pairs (Robishaw)
MARCH 31, 2022	Journal Club #5:

APRIL 5, 2022	Case Scenarios with Validated Drug-Gene Pairs (Robishaw)
APRIL 7, 2022	Journal Club #6:
APRIL 12, 2022	Future Directions in Oncogenomics and Pharmacogenomics (Robishaw)
APRIL 14, 2022	TEST #2: PHARMACOGENOMICS
APRIL 19, 2022	Project #2: Presentations
APRIL 21, 2022	Review and Wrap Up (Grant, Robishaw)

FINAL EXAM, THURSDAY APRIL 28, 2021, 10:30am – 1:00pm, BC 130.