**COURSE DESCRIPTION**

Explore how genetics and advanced technologies are applied in precision healthcare across the lifespan. Ethical issues will be examined. (Lecture 3)

**COURSE OVERVIEW AND GOALS**

This introductory course will explore the complexity of genetics within healthcare decision making. Advancing technology is moving healthcare choices towards selections based on a deep understanding of health and disease attributes unique to each individual. Approaches to precision health consider differences in genes, environments, and lifestyles in order to optimize treatment. Accompanying these scientific advances are social and ethical challenges.

**COURSE OUTCOMES**

1. Students who complete the course should emerge as more reflective and thoughtful professionals and/or consumers of precision healthcare. By the end of the course, students will be able to:

   - demonstrate an understanding of general genetic terminology.
   - articulate how genetic and genomic variation can influence health.
   - integrate information resources related to advancing technologies of genetic and genomic science.
   - demonstrate an understanding of evaluating technology advances from multiple perspectives.
   - explain how social and ethical implications are associated with genetic technology and precision healthcare.

2. Students who complete the course should emerge as competent seminar participant. By the end of the course, students will be able to:

   - adapt and apply new knowledge to situations to resolve problems or difficulties.
   - create meaningful connections with experiences outside of classroom with new knowledge and content that broadens understanding.
   - create a scholarly presentation that makes connections between basic genetic knowledge and ethical, legal and social implications.
REQUIRED RESOURCES

Item 1: Readings as indicated in the weekly schedule.
Disciplines included in readings include: nursing, medicine, pharmacy and ethics.

Item 2: Video filming service access.
The final presentation in this course requires the use of an online video filming service (Vimeo, YouTube, iMovie, etc.) and a microphone as well as access to a slide presentation software program (e.g. PowerPoint, Keynote).

SUGGESTED RESOURCE

Textbook- there is no required textbook for this course, reading material is provided.

<table>
<thead>
<tr>
<th>Course Components</th>
<th>Weight</th>
<th>Calculating Your Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>10%</td>
<td>Average for Quizzes *(0.10)</td>
</tr>
<tr>
<td>Perusall</td>
<td>30%</td>
<td>Average for Perusall *(0.30)</td>
</tr>
<tr>
<td>Sakai Discussions</td>
<td>10%</td>
<td>Average for Sakai Discussions *(0.10)</td>
</tr>
<tr>
<td>Assignments</td>
<td>20%</td>
<td>Average for Assignments *(0.20)</td>
</tr>
<tr>
<td>Final Presentation</td>
<td>30%</td>
<td>Final Presentation Score *(0.30)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>100%</td>
<td><strong>SUM ALL OF THE ABOVE</strong></td>
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Quizzes:
Quizzes are based on the material in a given week. Quizzes consist of multiple choice, true-false, and fill-in-the-blank questions. Please select the best answer for each question. Each quiz must be completed in a single attempt.

Perusall:
Perusall is a free online collaborative e-book reader. Assigned readings will be found in Perusall, allowing students to read the assigned material and annotate questions, perspectives, etc. about the content to other students. Text can be highlighted, annotated with questions/comments and posted for other students to respond. Use of Perusall is encourage deeper learning from the reading assignments. A video can be found on the Perusall to help students learn how to use the site. Students will be required to annotate in Perusall for each assigned reading. Weekly posts will require you at minimum 2 posts per reading. Annotations should not simply be a restatement of content rather, students should read material and annotate comments about their understanding of the material, questions you may have, confusion about topics, connections about material to your own life. A significant percentage of your grade is concentrated in the work you will do in Perusall. The purpose of using Perusall is to ensure students gain as much knowledge and understanding as possible from the reading and to create a community of learners with classmates in the online format.

Students will be required to make 2 Perusall posts/reading each week. These can be your own annotations and comments on peer posts. For example, you might choose to write annotations about your own understanding/misunderstanding/connection with the material and also post responses to classmate annotations. Response posts are intended to help each other learn so they might include clarifying a misunderstanding for another student, sharing an experience that brings to life content or validating their comments.
### Sakai Discussion:
Discussions on Sakai replace in-class discussions. Many of the weekly modules provide opportunities for group discussion, which is essential to the online learning environment. This is a forum for you to demonstrate your mastery of the course content and your ability to think critically about the material. The material will include both assigned readings, as well as material you will access from online resources. Each discussion forum will require you at minimum to make an “initial” post and at least one “follow-up” or “response” posts. **Initial posts are due on Thursdays and Response posts are due no later than Sundays at 11:59 PM EST** of the same week. This allows time to read and respond to your classmates’ posts. Responses are not simply agreements/disagreements. They should further the discussion in some way based upon class material and/or relevant literature that should be referenced and hyperlinked within the discussion. Some possibilities include: seeking clarification, providing additional information, references, resources, examples, or posing questions, etc. Please avoid responding with "I agree" or "That's a good answer."

While the Discussion Forums are open throughout the semester, please DO NOT work ahead and post until we are covering the content of a particular week.

**A helpful tip:** It can be helpful to draft your response in a word document FIRST, and then once you’ve edited it, to cut and paste your response into the Discussion forum.

**NOTE:** Discussions will be graded according to a rubric.

<table>
<thead>
<tr>
<th>Perusall Rubric:</th>
<th>Excellent 5-4 pts</th>
<th>Acceptable 3-2 pts</th>
<th>Unacceptable 1 pt.</th>
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<tbody>
<tr>
<td><strong>2 Annotation Posts</strong></td>
<td>Contribution thoughtful, logical, and organized. Content and personal reflection evident. Deep learning evident in comments and questions posed. Submitted before deadline allowing others to respond.</td>
<td>Discussion of topic appropriate but thoughts not fully developed. Somewhat meaningful connection between content and personal reflection on topic. Surface learning evident in comments and questions posed. Post submitted before deadline.</td>
<td>Post that lacks structure, insight or depth. Does not express personal opinion or understanding of content. Provide basic restatements of content.</td>
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<tr>
<td><strong>2 Classmate Response Posts</strong></td>
<td>Reply shows high level of understanding of topic. Personal opinion expressed respectfully and is clearly related to original post. Free of grammar and spelling errors. Replied to 2 or more posts. Posts submitted by assignment deadline</td>
<td>Post appropriate in length but relationship to original post is weak or unclear. Shows some understanding and relationship to original post. Replied to 2 posts and by assignment deadline. Some grammar and spelling errors.</td>
<td>Reply does not add value to the discussion and shows little understanding of the original post. Language is informal using abbreviations or text lingo. Spelling and grammar errors evident. Post submitted after assignment deadline.</td>
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Discussion Rubric:

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<tr>
<th></th>
<th>Excellent 5-4 pts</th>
<th>Acceptable 3-2 pts</th>
<th>Unacceptable 1 pt.</th>
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</thead>
<tbody>
<tr>
<td>Initial discussion</td>
<td>Contribution thoughtful, logical, and organized.</td>
<td>Discussion of topic appropriate but thoughts not fully developed.</td>
<td>Short post (1-2 sentences). Lacks structure, insight or depth. Does not express personal opinion or understanding of subject. Citations and references omitted. Written in informal language with poor spelling and grammar</td>
</tr>
<tr>
<td>posting</td>
<td>Content and personal reflection evident. Brings new thoughts to discussion.</td>
<td>Somewhat meaningful connection between content and personal reflection on topic.</td>
<td></td>
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<tr>
<td></td>
<td>Information cited as required. Reference for cited material included at end of post. Free of grammar or spelling errors. Submitted before deadline allowing others to respond.</td>
<td>Some errors in citations and references. Some grammar and spelling errors. Post submitted before deadline.</td>
<td></td>
</tr>
<tr>
<td>Reply Postings</td>
<td>Reply shows high level of understanding of topic. Personal opinion expressed respectfully and is clearly related to original post. Free of grammar and spelling errors. Replied to 2 or more posts. Posts submitted by assignment deadline</td>
<td>Post appropriate in length but relationship to original post is weak or unclear. Shows some understanding and relationship to original post. Replied to 2 posts and by assignment deadline. Some grammar and spelling errors.</td>
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Assignments:
Students are also required to complete assignments such as case study exercises as requested. This is an opportunity for application of your new knowledge and new tools to real life situations and to draw on experience (clinical, experimental, personal, etc.) on many occasions. A rubric for case studies will be made available with each case study assigned. Please attach your work to the assignment tool - do not email anything to me.

Final Presentation:
For the final presentation, you will be asked to produce a video or voice-over slide presentation in video format consisting of a summary of a genetic disorder, technological or ethical issue of your choosing (with approval of your topic by the instructor). Your project must include an integration of ethical, legal or social implications relevant to your topic. The target audience you will be communicating to is a panel of experts at the National Institutes of Health and why this particular disease or technology should receive funding. If you choose to present an ethical issue, the target audience will be hospital board that includes medicine, nursing, pharmacy, clergy and laypersons. Students are encouraged to work in groups of 2 to complete the assignment. More details will be made available. A rubric will be provided for this assignment. As part of your final presentation grade you will be asked to provide feedback, guided by the rubric, to 2 of your classmates.
Grading Scale:

A (93-100)  B+ (87-89)  B- (80-82)  C (73-76)  D+ (67-69)
A- (90-92)  B (83-86)  C+ (77-79)  C- (70-72)  D (63-66)

Due Dates:

All course due dates are identified in the Course Schedule. Deadlines are based on EST; if you are in a different time zone, please adjust your submittal times accordingly. **The instructor reserves the right to change dates accordingly as the session progresses. All changes will be communicated in an appropriate manner.**

Deadlines in this class are clearly posted for all work. It is the student’s responsibility to account for the time required to complete the tasks for a given week. **TAKE NOTE: WEEKLY ASSIGNMENT NOT SUBMITTED BY DEADLINE WILL RECEIVE A GRADE OF ZERO (no exceptions). Please back up your work on a flash drive, email to self, and/or store in a cloud. It is a good idea to have a back-up plan in case of computer problems, e.g., a friend’s computer, the library, etc.**

Feedback and Grades:

I will make every effort to respond to email within 24-48 hours Monday thru Friday between 8 am and 5 pm. Emails received late on Friday will be returned on Monday.

I will make every effort to grade and provide feedback for coursework within 1 week of the due date for the assignment.

Minimum Technical Skills:

To be successful in this course, you will need the following technical skills:

- Use electronic mail with attachments.
- Save files in commonly used word processing program formats.
- Copy and paste text, graphics or hyperlinks.
- Work within two or more browser windows simultaneously.
- Open and access PDF files.
- Annotation using online content.
- Create and post a short video.

Sakai Help and Information:

The ITS Service Desk, located in the URI Library, is prepared to help students should they encounter problems with Sakai. Please read through the following information:

1. For login problems, call the Service Desk at 874-4357.
2. The Service Desk Website, [https://web.uri.edu/itservicedesk/](https://web.uri.edu/itservicedesk/), posts the semester operating schedule as well as a link on the right index to the self-help technical wiki. That site contains Sakai help and instructions for both students and faculty.
3. The Service Desk cannot add or drop students to/from a course.
4. Recommended browsers (those with the most QA testing effort against them) are Google Chrome, Safari, and Mozilla Firefox. The mobile versions of these browsers also work well with the majority of operations in Sakai. Internet Explorer is not recommended.

Technology Requirements:
Computer access to the internet is required in order to successfully navigate this course. The course is delivered through the Sakai platform, which is a set of web applications designed to work with modern web browsers. Recommended browsers (those with the most QA testing effort against them) are Google Chrome, Safari, and Mozilla Firefox. The mobile versions of these browsers also work well with the majority of operations in Sakai. **Internet Explorer is not recommended.**

**Classroom Protocol:**

For this online course, Sakai is our “classroom.” Please refer to the Sakai tutorial video embedded on our course homepage (START HERE!) for a detailed screencast on how this course will run via Sakai, which tools you will need, and how to use those tools.

In the online learning environment, “attendance” is measured by your PRESENCE in the site as well as your CONTRIBUTIONS to the site. The importance of regular logins and active participation cannot be overstated. I will gauge your participation by your regular, on-time forum postings and responses and timely assignment submissions. If you’ve never taken an online course, “hanging out” in Sakai will take some getting used to, and it will be easy to forget about the course from time to time.

I recommend that you check out the Online Learn Orientation at [https://sakai.uri.edu/portal/site/8287ab7d-aa33-4fa7-ad8c-066fe8203251](https://sakai.uri.edu/portal/site/8287ab7d-aa33-4fa7-ad8c-066fe8203251). This short orientation will provide you with an introduction to the important aspects of taking an online course. I further recommend that you get in the habit of daily attendance online to maximize your successful completion of the course. Please refer to the **Course Schedule** at the end of this syllabus and on the Sakai site for details on how and when you will be expected to contribute to the course.

**Online Learning:**

As stated above, the best way to begin this course is to view the START HERE! video, read the syllabus, and complete the **Online Learn Orientation**. In addition, you can find more helpful information at this site: [http://web.uri.edu/online/learningonline/](http://web.uri.edu/online/learningonline/).

This course is divided into 14 weeks. The weekly module on SAKAI contain the learning objectives for that week, assigned readings, videos, links to other important content on the internet and discussion activities.

**ACADEMIC SUPPORT SERVICES**

**Office of Disability Services**
1. Any student with a documented disability is welcome to contact me early in the semester so that we may work out reasonable accommodations to support your success in this course. Students should also contact Disability Services for Students, Office of Student Life, 330 Memorial Union, 401-874-2098.
2. From the University Manual: **6.40.10 and 6.40.11 Accommodations for Qualified Students With Disabilities.** Students are expected to notify faculty at the onset of the semester if any special considerations are required in the classroom. If any special considerations are required for examinations, it is expected the student will notify the faculty a week before the examination with the appropriate paperwork.

**PROFESSIONAL CONDUCT**

Cheating and plagiarism are serious academic offenses, which are deal with firmly by the College and University. Scholastic integrity presumes that students are honest in all academic work. **Cheating** is the failure to give credit for work not done independently (i.e., submitting a paper written by someone other than yourself), unauthorized communication during an examination, or the claiming of credit for work not done (i.e., falsifying
Plagiarism is the failure to give credit for another person’s written or oral statement, thereby falsely presuming that such work is originally and solely your own. If you have any doubt about what constitutes plagiarism, visit the following website: https://honorcouncil.georgetown.edu/whatisplagiarism, the URI Student Handbook, and University Manual sections on plagiarism and cheating at http://web.uri.edu/studentconduct/student-handbook/.

Students are expected to be honest in all academic work. A student’s name on any written work, quiz or exam shall be regarded as assurance that the work is the result of the student’s own independent thought and study. Work should be stated in the student’s own words, properly attributed to its source. Students have an obligation to know how to quote, paraphrase, summarize, cite and reference the work of others with integrity. The following are examples of academic dishonesty.

- Using material, directly or paraphrasing, from published sources (print or electronic) without appropriate citation;
- Claiming disproportionate credit for work not done independently;
- Unauthorized possession or access to exams;
- Unauthorized communication during exams;
- Unauthorized use of another’s work or preparing work for another student;
- Taking an exam for another student;
- Altering or attempting to alter grades;
- The use of notes or electronic devices to gain an unauthorized advantage during exams;
- Fabricating or falsifying facts, data or references;
- Facilitating or aiding another’s academic dishonesty;
- Submitting the same paper for more than one course without prior approval from the Instructor.

Please note the following section from the University Manual:

8.27.17. Instructors shall have the explicit duty to take action in known cases of cheating or plagiarism. The instructor shall have the right to fail a student on the assignment on which the instructor has determined that a student has cheated or plagiarized. The circumstances of this failure shall be reported to the student’s academic dean, the instructor’s dean, and the Office of Student Life. The student may appeal the matter to the instructor’s dean, and the decision by the dean shall be expeditious and final. Such action will be initiated by the instructor if it is determined that any written assignment is copied or falsified or inappropriately referenced.

Any good writer’s handbook as well as reputable online resources will offer help on matters of plagiarism and instruct you on how to acknowledge source material. If you need more help understanding when to cite something or how to indicate your references, PLEASE ASK.

Please note: Students are responsible for being familiar with and adhering to the published “Community Standards of Behavior: University Policies and Regulations” which can be accessed in the University Student Handbook.
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<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Required</th>
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<tbody>
<tr>
<td>1</td>
<td>5/20</td>
<td><strong>Unit 1: Basic concepts in Genetics and Genomics</strong>&lt;br&gt;Course Introduction &amp; Basic Genetic Concepts; Central Dogma; Ethical Framework; Influences on Gene Expression, Mutations &amp; Genetic Variance; APA and AMA Formatting</td>
<td>• Online orientation&lt;br&gt;• Reading&lt;br&gt;• Forum 1&lt;br&gt;• Activity&lt;br&gt;• Quiz 1</td>
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<tr>
<td>2</td>
<td>5/27</td>
<td><strong>Unit 2: Inheritance Patterns and Family History</strong>&lt;br&gt;Modes and Patterns of Inheritance; Family History &amp; Pedigree Construction; Elements of Informed Consent</td>
<td>• Reading&lt;br&gt;• Activity&lt;br&gt;• Quiz 2&lt;br&gt;• Forum 2&lt;br&gt;• <strong>Final Topic Due</strong></td>
</tr>
<tr>
<td>3</td>
<td>6/3</td>
<td><strong>Unit 3: Common Disorders in Prenatal and Neonatal Populations</strong>&lt;br&gt;Principles of Prenatal Genetics; Genetic Testing, Prevention and Genetic Counseling; Gene Editing Congenital Anomalies in the Newborn; Ethical Issues in Science and Medicine</td>
<td>• Reading&lt;br&gt;• Activity&lt;br&gt;• Quiz 3&lt;br&gt;• Forum 3</td>
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<tr>
<td>4</td>
<td>6/10</td>
<td><strong>Unit 4: Adult Onset Genetic Disorders</strong>&lt;br&gt;Genetics of Cancer and Cardiovascular Disease; Novel Therapies: Pharmacogenomics and Gene Therapy; Ethical Issues in Nursing and Pharmacy; Genetic Information</td>
<td>• Reading&lt;br&gt;• Activity&lt;br&gt;• Quiz 4&lt;br&gt;• Forum 4</td>
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<tr>
<td>5</td>
<td>6/17</td>
<td><strong>Unit 5: Special Considerations for the Genomics Era &amp; Final Presentations</strong>&lt;br&gt;Trends, Ethical, Legal, Social Issues</td>
<td>• Reading&lt;br&gt;• Forum 5&lt;br&gt;• <strong>Final Presentation</strong></td>
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