



Personalised Medicine

Course Outline

Never Stand Still

Medicine

PERSONALISED MEDICINE

GENM0295

SESSION 2, 2014

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Course Introduction

Personalised Medicine (GENM0295) is an undergraduate General Education course, run jointly by the Prince of Wales Clinical School and the School of Medical Sciences. The acceleration in new technology and genomic science over the last few years has had profound effects on modern medicine and has the potential to revolutionise healthcare. The promise of “personalised medicine” will likely yield significant benefits for patients, yet raises a number of serious ethical and legal issues for clinicians, patients and the wider society. This General Education course will provide students with a framework to understand this rapidly growing field. It will also provide the opportunity to debate the national and international healthcare issues that will arise in parallel with the advent of this genetic revolution.

Course Details

This course is offered during Semester 2 and has six unit of credit (UOC).

There are no pre-requisites, and the course can be taken in any year of a degree.

The contact hours for this course are 2 X 1 hour lectures per week (Wednesday 10-11am & Thursday 12-1pm) and 1 X 2 hour tutorial every fortnight (Thursday 10am-12pm; either weeks 2, 4, 6, 8, 10 & 12 or 3, 5, 7, 9, 11 & 13).

Course Staff

Course Convenor: Dr Sheri Nixdorf

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Course Student Advisor: Ms Carmen Robinson

BSB Student Office, Room G27, Ground Floor, Biosciences Building

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Students wishing to see their tutors or other members of staff should call in at the BSB (BABS/SOMS/BEES) student office and make an appointment with the student support staff. If students have difficulties of a personal nature, they should contact the School of Medical Science Grievance Officer, Dr Priti Pandey (p.pandey@unsw.edu.au).

Should a student feel that there are particular circumstances that have affected their performance in the course, they can lodge an application for special consideration. The procedures involved in this are outlined in the UNSW Student Guide, and special forms are widely available on campus. All students in the course are advised that email is the official means by which the Course Convenor and administrative staff will communicate with them. All email messages will be sent to the student's official UNSW email address (e.g., z1234567@student.unsw.edu.au). If a student does not wish to use the University email system, they MUST arrange for their official mail to be forwarded to their chosen address. The University recommends that students check their mail at least every other day.

Student Support Services

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convenor prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit at <http://www.studentequity.unsw.edu.au>. Issues to be discussed may include access to materials, note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made. Student Equity Officers (Disability) in the Student and Diversity Unit can be contacted on ph: 9385-4734, or email: seadu@unsw.edu.au.

Course Aims

The aim of this course is to introduce a general audience to the concept of “personalised medicine”, and the impact that our enhanced understanding of the human genome has had on modern clinical practice.

The last 10-15 years have yielded significant and rapid advances in our understanding of the human genome, and the impact on human health & clinical practice is already being widely felt. This course will discuss both the potential benefits and possible controversies surrounding the genetic revolution as it relates to healthcare. Students will learn how genetic testing is currently used to guide treatment across

a range of diseases including cancer, neurological diseases, metabolic disorders, cardiovascular disease, and infectious disease. In addition, students will explore the power of genetics to impact disease prevention and diagnosis, and the social, legal, political and ethical implications of this new knowledge.

Student Learning Outcomes

At the completion of this course a successful student will be able to:

1. Understand basic genetic concepts of gene expression, mutation, and how genes are “passed on” to the next generation.
2. Describe the principles of risk determination and provide examples of how genetic testing is currently used to inform medical management.
3. Understand the basic process by which “targeted therapies” are developed, from drug discovery, through clinical trials, to regulatory approval, in both national and international contexts.
4. Describe and debate ethical issues related to the availability and use of direct to consumer genetic testing for determining disease risk and related health outcomes.
5. Describe how research and drug developments in personalised medicine are presented in the media, and the effect this may have on patients, policy & society both locally and globally.
6. Debate the legal, religious, cultural and societal issues surrounding the emerging concept of personalised medicine.

Graduate Attributes

This course will contribute to the following UNSW graduate attributes:

1. The skills involved in scholarly enquiry.
2. The capacity for analytical and critical thinking and for creative problem-solving.
3. The ability to engage in independent and reflective learning.
4. Information literacy: the skills to appropriately locate, evaluate and use relevant information.
5. An appreciation of, and respect for, diversity.
6. A capacity to contribute to, and work within, the international community.
7. A respect for ethical practice and social responsibility.

Teaching Strategies

The course employs a variety of teaching modes in order to facilitate student learning. These include:

1. A series of lectures (24 hours in total) that introduce key concepts about the current use of personalised medicine.
2. Small group tutorials (10 hours in total) that extend and amplify students' understanding of concepts and materials presented in lectures, and explore the impact of personalised medicine on wider society.
3. Individual and group study. Students will undertake individual and group study to complete key assessment tasks throughout the course (see Assessment).

Learning is supported via Moodle. Announcements, timetables, lecture slides and other resources will be made available on Moodle during the course.

Attendance Requirements

Attendance at all tutorials is compulsory. A minimum 80% attendance at lectures is required for you to be eligible for assessment in this course.

For further information on UNSW attendance policies and procedures concerning students, please see:

<https://my.unsw.edu.au/student/resources/Policies.html>

For UNSW assessment information and policy, see:

<https://my.unsw.edu.au/student/academiclife/assessment/AssessmentPolicyNew.html>

&

<https://my.unsw.edu.au/student/academiclife/assessment/AssessmentatUNSW.html>

Course Design

WEEK	LECTURE 1	LECTURE 2	TUTORIAL
1	How did medicine become scientific?	Basic cell biology & genetics I	No tutorial this week
2	Basic cell biology & genetics II	New technology & the genetic revolution	Does our genome define who we are? Nature vs nurture.
3	Genes & environment	Genes, talent & exercise	
4	Principles of inherited disease & risk determination	Lab visit	
5	Personalised medicine in the clinic	Pre-natal genetic testing	Case studies and examples of how knowledge of the human genome has changed modern healthcare.
6	Genetic counselling	Gene therapy	What issues may arise in a multicultural and multifaith society such as Australia, with the rapid advances in our genetic knowledge?
7	Genes & the law	Clinical trials & drug approval	
8	The pharmaceutical industry & personalised medicine	Disease focus: Neurological disease	
9	Disease focus: Mental health and neuropsychiatric disorders	Disease focus: Metabolic diseases	Drug approval, government funding, media, lobbying – here vs. worldwide.
MID-SEMESTER BREAK			
10	Disease focus: Cardiovascular disease	Disease focus: Infectious disease	Group work
11	Disease focus: Cancer	Psychosocial impact of genetic & genomic testing	
12	Personalised medicine & the media	Direct to consumer genetic testing	Final presentations
13	No lecture this week	No lecture this week	

Assessment

<i>Short oral presentation</i>	10%
<i>Online reflective journal</i>	10%
<i>Short online MCQ quizzes</i>	20%
<i>Essay/opinion piece</i>	40%
<i>Group presentation</i>	20%

Short oral presentation (10%)

Students will prepare and present a 5 minute oral presentation on an area of controversy in personalised medicine. This talk will be given in the tutorial class and students will receive feedback from tutors and other students.

Online reflective journal (10%)

Students will keep an online journal for the 12 weeks of the course to reflect on their personal views of the topics raised in lectures and explored in tutorials. Online journals will be private and not available for other students to read. Tutors will have access only to assess whether the students are engaging with the material.

Online MCQ quizzes (20%)

Students will sit two online multiple choice quizzes (questions randomised) to test their understanding of basic biological and genetic concepts. The quizzes will be available on Moodle and students can retake the quiz up to 3 times. Students will receive their mark immediately after completing the quiz.

Essay/opinion piece (40%) and Group presentation (20%)

Students will work in small groups (4-5 students) on a project on one topic in the area of personalised medicine. Students will individually write a comprehensive 1,500 word report on the topic. Students can write a traditional essay or choose to write from a specific viewpoint (e.g. patient, doctor, health minister, genetic counsellor, conservative newspaper columnist). Students will have the opportunity to receive direction and guidance from course tutors during the tutorial sessions. The essay is due at the end of week 10.

The group presentation will be given in the final tutorial (week 12 or 13). Students will present a 15 minute oral presentation as a group on the same topic as their essay. Students will be given the choice of format - a traditional lecture, debate, panel discussion or video.

Note: Penalties will apply for late submission of work.

Academic Honesty and Plagiarism

UNSW will not tolerate plagiarism in submitted written work. The University regards this as academic misconduct and imposes severe penalties. Evidence of plagiarism in submitted assignments, etc. will be thoroughly investigated and may be penalised by the award of a score of zero for the assessable work. Significant plagiarism will be directly referred to the Division of the Registrar for disciplinary action under UNSW rules. The attention of students is drawn to the notes on plagiarism from the A-Z student guide on MyUNSW (<https://my.unsw.edu.au/student/atoz/Plagiarism.html>).

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own.*

Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre, and used with kind permission from the University of Newcastle.

† Adapted with kind permission from the University of Melbourne.