POPH30002 Societal Issues and Personal Genomics

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	This subject is not offered in 2016.
Time Commitment:	Contact Hours: 2 x 1 hr lectures per week, 1 x 2 hr session (entailing a combination of symposia, panel discussions, debates) every 2 weeks Total Time Commitment: 120 hours
Prerequisites:	One of: **Subject** / **Study Period Commencement:** / **Credit Points:** BIOL10003 Genes and Environment / Semester 2 / 12.50 BIOL10005 Genetics & The Evolution of Life / Semester 2 / 12.50 GENE10001 Genetics in the Media / Semester 1 / 12.50 UNIB20007 Genetics, Health, and Society / Semester 1 / 12.50
Corequisites:	None
Recommended Background Knowledge:	Fundamental understanding of the nature of genes and genomes at level 1.
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Contact:	Prof Sylvia Metcalfe **sylviaam@unimelb.edu.au (mailto:sylviaam@unimelb.edu.au)**
Subject Overview:	This subject will examine potential applications of personal genomics with a strong focus on the historical, ethical, legal, social, cultural, political and economic aspects. Guest lecturers will include experts from these diverse disciplines, both within and external to the University. The subject will be organised in topics, and draw on published research findings as appropriate. It will include: # Historical perspectives that have led to personal genomics. There have been remarkable technological advances since the human genome sequence was published at the culmination of the Human Genome Project in 2003. Subsequent global enterprises have shed further light on our understanding of the elements of genomes and how these contribute to human health and disease. Who were the players in these endeavours? What were the scientific and political drivers? What do differences in human genome sequences mean at the individual and population level? How are genome sequences of specific populations being used to understand 'peopling of the planet' – that is, understanding human genetic roots by exploring migration of populations throughout history with the National Geographic's Genographic Project, especially for individual use of ancestry tracking and through direct-to-consumer internet sites. # It is now possible for a person to undertake personal genome sequencing at an affordable price. What does it mean to have your genome sequenced? What exactly is the nature of the information and how can it be used? The main focus will be on interpretation and limitations of the data from the perspective of health informatics. How can a personal

	genome be managed most effectively for the benefit of the person? How are results of uncertain significance interpreted and managed? What information do individuals want and is this information always useful or are there potential harms for an individual and society in knowing this information - what are the promises, perils and pitfalls? This is explored in the context of applying frameworks such as ACCE (analytical validity, clinical validity, clinical (and personal) utility and ethical, legal and social issues) # Direct-to-consumer marketing and testing of personal genomes, and the roles of social networking, the 'quantified self' movement and data for research. What are the ethical, legal and economic ramifications, especially with regard to privacy and data sharing? # A public health related topic will be explored as an exemplar for the application of personal genomics to understand the genetic contribution and susceptibility to disease, prevention and tailoring of therapies including pharmacogenetics and pharmacogenomics. Given the implications of inherited diseases for other family members, what are the socio-cultural factors impacting on communication of genetic information within families? # What are the socio-cultural implications of the quest for a 'perfect baby'? Is GATTACA fiction or reality? How will personal genomics be applied in the context of reproductive decision-making? How does epigenetics influence reproductive decision-making with respect to fetal development and future health? Can this information be integrated in decision-making? # Every baby's genome could be sequenced at birth, as part of newborn screening. How could this information be harnessed for the future health of the child? What are the ethical considerations and implications for informed consent, such as impact on the child's anticipatory autonomy? What is the role of biobanking?
Learning Outcomes:	At the end of this subject, the student will build on their understanding of genes and genomes to investigate the broader multidisciplinary contexts of personal genomics through an appreciation of the social, ethical, legal, cultural, political and economic aspects.
Assessment:	2 online quizzes, each of 20 min duration, relating to perceptions of personal genomics (start and end of semester) 5% each examination (MCQs and SAQs)during class, 30 min duration (approx. week 6) 20% essay (up to 1500 words) (end of semester) 30% 2hr examination (end of semester) 40%
Prescribed Texts:	None – online readings will be provided
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2016/B-ARTS)** # **Bachelor of Biomedicine (https://handbook.unimelb.edu.au/view/2016/B-BMED)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2016/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/B-MUS)** # **Bachelor of Science (https://handbook.unimelb.edu.au/view/2016/B-SCI)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	Students who successfully complete this subject will: • appreciate the broader societal contexts of the concept and relevance of personal genomics in health and disease; • be able to critically evaluate and articulate the potential promises and pitfalls that may be associated with clinical and non-clinical applications of personal genomics; • be open to a broad range of perspectives and have the skills to engage in informed and meaningful debate in society.