Precision Health Program Course Descriptions

Please see the UCalgary Calendar for more details including prerequisites and credits.

MDPR 600 Foundations of Precision Health

A key skill in the field of precision health is the ability to critically analyse precision health through the lens of person-centred care and transdisciplinary perspectives, including the role that education, innovation, data literacy, technology, and ethical leadership have in the precision health ecosystem.

MDPR 601 Ethics and Law of Precision Health

The practice of precision health raises unique ethical and legal questions. Explore: a) the bioethical and legal principles underlying precision health; b) consent, privacy, and use of data; c) the social impact of precision health; d) patient safety and the responsibilities of health professionals and organizations; and e) equitable access, stewardship of resources, and the development of health technology.

MDPR 603 Health System Leadership

A critical examination of leadership development in the era of precision health as it relates to individual leadership practices, multi-disciplinary teams, and the broader healthcare system. Exploration of new frameworks to facilitate collaborative decision making and effecting change. Students will use critical appraisal to identify the most relevant research and make evidence-based decisions to problem-solve around real issues in health systems.

MDPR 604 Managing Complex Projects in Precision Health

Explore complexity from system and project perspectives and link complexity to the design and delivery of precision health projects. Apply project management approaches and tools for planning and executing complex innovation and change projects. Emphasis is placed on innovative (novel and useful) precision health ideas and projects.

MDPR 610 Omics Applications for Clinical Practice

Omics technologies have revolutionized data collection, patient diagnosis, and disease management. A number of key omics technology platforms will be introduced, with a particular focus on the clinical use of genomic data and their application in research.

MDPR 611 Pharmacogenomics

An introduction to clinical pharmacogenomics, including nomenclature, guidelines, software tools, and considerations for clinical implementation of pharmacogenetic testing. Activities and assessments will reflect real-world application of pharmacogenomics.

MDPR 612 Precision Oncology

An introduction to the genetics and immunology of cancer and how genetics are being used for diagnosis, prognostication, and treatment. Topics include: clinical applications of precision oncology; molecular concepts and databases relevant to clinical care and research; cancer clinical trials; ethical considerations in the application of precision oncology; and the multidisciplinary nature of the field.

MDPR 613 AI Applications in Precision Health

Concepts and ideas in artificial intelligence (AI) and machine learning including statistical approaches, visualization, and human-computer interactions. Applications of AI techniques and software tools. This will primarily involve exploring recent examples of AI and Machine Learning tools being specifically used to aid in clinical practice.

MDPR 619 Advanced Precision Medicine

An advanced seminar course covering recently published examples of precision medicine. Students will critically evaluate the subjects of discussion, creatively explore ways in which precision medicine studies and tools could be developed, and will focus on ways in which they can lead health system transformation such that the benefits of precision medicine are more widely realized for their patients.

MDPR 620 Quality Management

Quality management principles and science will be introduced starting with quality management frameworks and theory that will guide students' learning. Quality management tools for data analysis, prioritization, improvement and change management

will be introduced and described which will help students succeed in quality improvement projects.

MDPR 621 Safety Management

An introduction to safety science and the key concepts for managing patients' safety in the healthcare system. Topics will include the exploration of proactive and reactive safety management, recognizing the similarities and differences with quality management and learning concepts of managing a serious patient harm event with a focus on system analysis.

MDPR 629 Advanced Quality and Safety Leadership

Understanding the theories and principles of quality management will provide you with an opportunity to acquire the skills required to design, implement, and evaluate a quality improvement or safety analysis project.

MDPR 630 Health Professional Teaching and Learning

Students will learn how to adapt teaching and assessment practices in response to changing contexts, new research, and advancing technologies. Emphasis is placed on health professional education in precision health contexts and competency-based medical education.

MDPR 631 Curriculum Oversight and Stewardship

Acquiring the ability to review health professional curriculum ensures that it aligns with the requirements of accreditors, legislators, and other governing bodies. Topics include: quality improvement for curriculum, with a particular emphasis on modifications for Precision Health initiatives.

MDPR 632 Leadership in Health Professional Education

Engage with concepts in curriculum leadership with a particular attention to leading adaptations of educational curricula in response to external forces. Students will be supported to work with teams to maximize strengths and establish a space that fosters advancements in health professional education. There is a specific focus is on the skills needed to lead new education initiatives for precision health.

MDPR 639 Advanced Curriculum Design in Precision Health

Create, implement and evaluate an innovative curriculum in the field of precision health, based on sound principles of curricular design and delivery. This course invites consideration of interprofessional learning, equity, diversity and inclusion, and integration of advanced technologies.

MDPR 640 Entrepreneurial Thinking and Innovation in Precision Health

Application of entrepreneurial thinking principles to develop innovative ideas in a range of contexts, including private or public sector, for-profit or non-profit. Particular emphasis is placed on generating innovative (novel and useful) ideas in a precision health context and bringing those to market.

MDPR 641 Sustainable Business Cases for Precision Health Innovations

Building strong cases for innovative ideas in precision health systems, based on objective and holistic analysis through the application of business model analysis, economic analysis, benefit realization, and health technology assessments. The course addresses internal projects within healthcare systems and new venturing ideas.

MDPR 642 Implementing Innovations in Precision Health

Planning and organizing the execution of precision health innovation projects within health care systems, including budgeting, mobilizing financial resources, and strategic planning. Concentration on both internal projects within healthcare systems and new venturing ideas. An emphasis is placed on publicly funded healthcare systems.

MDPR 643 Managing Technology Development in Precision Health

Planning and organizing the implementation of technology development projects in precision health (e.g., software, wearable devices, big data applications, etc.). Particular topics include technology development approaches, planning for execution, budgeting, and minimal viable products.

MDPR 649 Advanced Innovation and Entrepreneurship

Application of insights from the research literature for selecting appropriate approaches for planning and executing system-level innovative projects in precision health. Particular topics include barriers to healthcare innovations and frameworks (financial, organizational, informational) for implementing system-level innovations.

MDPR 672 Data Interpretation and Presentation

Data visualization skills enhance the ability to interpret and communicate facts to stakeholders. Students will work with quantitative and qualitative data to derive meaning and present options for decision-making, develop data-informed health care questions, identify measures, analyze data sets, and discuss how to work with data analysts and patient partners.

MDPR 673 Human Factors

An understanding of human skills and limitations can improve the ability to design better healthcare systems that reduce the likelihood of errors and improve patient outcomes. Explore the theory and data pertaining to the relationships between humans, technology, and environments.

MDPR 685 Experiential Learning: Project Planning and Implementation

Develop a project proposal and implement a capstone project with a community partner or researcher to apply your existing knowledge and skills at an advanced level.

MDPR 686 Experiential Learning: Implementation and Evaluation

Evaluate your experiential learning capstone project by synthesizing data collected, then reflecting and synthesizing your key findings.