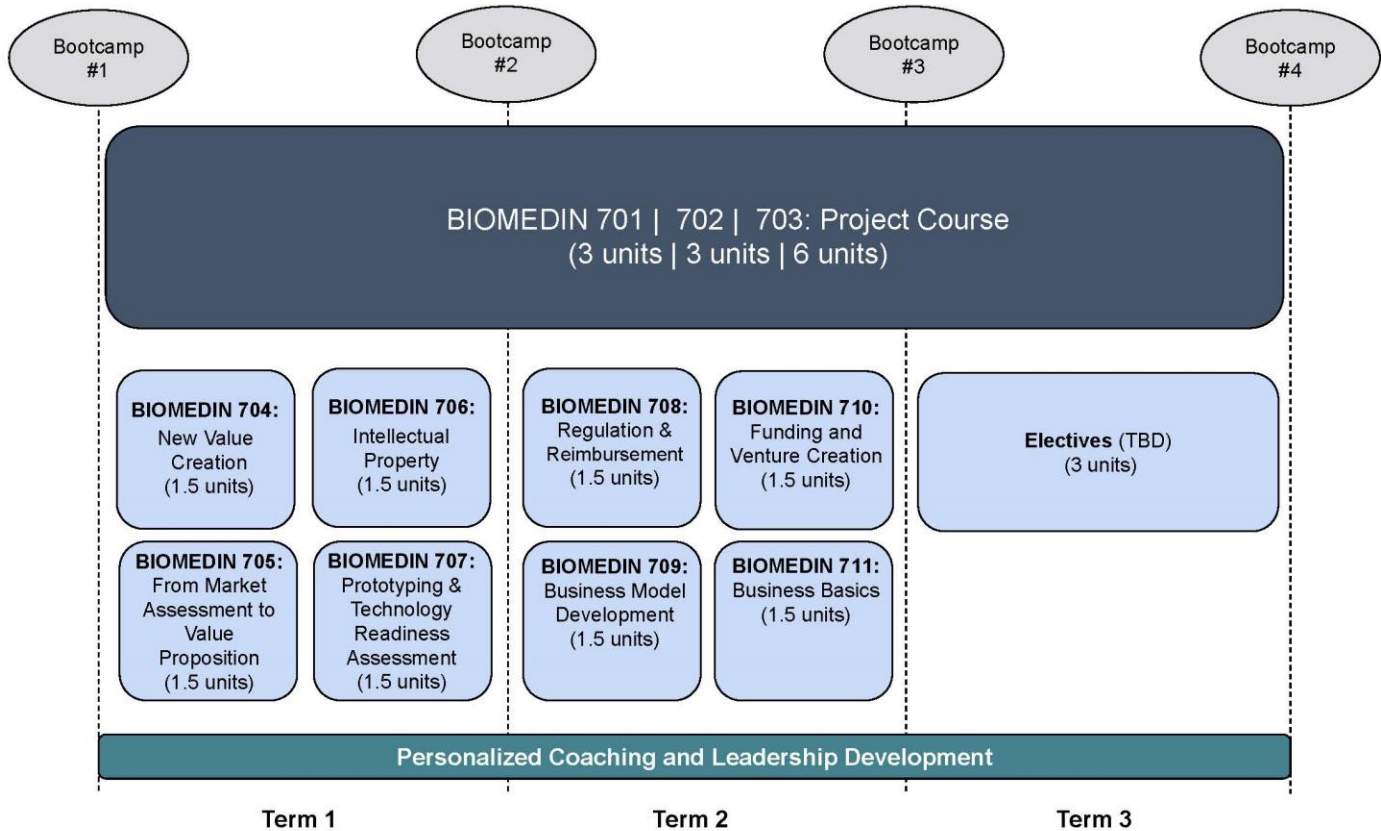


Program Overview



Project Course [BIOMEDIN 701 | 702 | 703]

The program has been designed to take students through the process of clinical needs finding, creating a novel biomedical solution, to the formation of an early-stage biomedical venture. The project course will take students through the following phases:

- BIOMEDIN 701 – Biomedical Problem Identification [Term 1]
- BIOMEDIN 702 – Solutions Design and Prototyping [Term 2]
- BIOMEDIN 703 – Business Model and Pitch Development [Term 3]

During the first bootcamp, MBI students will participate in a clinical immersion experience where they will have the opportunity to observe and identify unmet needs, challenges and/or opportunities that exist within a healthcare environment.

Through systematic data collection, analysis and synthesized validation, students will refine their list of unmet needs until a project idea emerges. In small groups, student will work through the stages of their biomedical innovation project.

Groups will be assigned a project supervisor who will guide and evaluate students based on the completion of milestones that focus on establishing the desirability, feasibility and viability of their innovative solution.

Term 1: Biomedical Problem Identification

BIOMEDIN 704: New Value Creation

This course is designed to allow learners to identify unmet needs, identify potential root causes of observed problem(s), and validate them. Students will also learn how the healthcare system functions so that they can identify important stakeholders in the healthcare space. They will practice ideation methods to develop the framework for potential solutions that address unmet needs within the confines of complex healthcare systems.

BIOMEDIN 705: From Market Assessment to Value Proposition

In this course, students will learn to assess whether there are available alternatives already on the market that solve the identified problem and estimate market size, including dollar size and number of users. They will identify potential barriers to market entry and strategies to overcome them. They will validate the product-market fit for the proposed problem solution (innovation), identify risks and risk mitigation strategies in alignment with industry standards, and learn how to articulate a competitive advantage for their proposed solution.

BIOMEDIN 706: Intellectual Property

This course will cover how to conduct patent searches and how intellectual property (IP) can be protected in a variety of innovation domains, including medical device, therapeutics and diagnostics, and digital health. Students will learn how to maintain confidentiality in external-facing communications and how to develop and execute an IP strategy.

BIOMEDIN 707: Prototyping and Technology Readiness Assessment

This course will guide students through topics such as design thinking, proof of concept, and rapid prototyping alongside health professionals and users in both simulated and operational environments. Students will gain the knowledge and skills required to prototype various health innovations including

digital health, therapeutics, diagnostics, and medical devices. The students will also learn how to integrate design factors into their prototypes and successfully test new prototype iterations in real-world environments to prepare for full-scale implementation.

Term 2: Solutions Design and Prototyping

BIOMEDIN 708: Regulation & Reimbursement

This course explores the regulation and reimbursement landscape in biomedical innovation. Students will gain an understanding of the regulatory frameworks governing the development and approval of medical products, including drugs, devices, and diagnostics. Practical skills will be developed in ensuring compliance with regulatory requirements and ethical considerations. Students will learn to navigate the complex reimbursement systems, analyze reimbursement models, and evaluate the implications for biomedical innovations.

BIOMEDIN 709: Business Model Development

This course explores the key components necessary for success in the biomedical industry. Through a combination of theoretical knowledge and practical application, students will learn to identify and analyse the critical elements of a business model specific to biomedical innovations. They will learn how to evaluate and determine the most appropriate business model for viability and revenue generation that aligns a biomedical innovation with a target market, maximizes value creation and ensures long-term sustainability.

BIOMEDIN 710: Funding and Venture Creation

This course explores funding and venture creation for new startups. Students will gain an understanding of various funding sources available to startups, including venture capital, angel investors, crowdfunding, and government grants. They will learn to develop an effective funding strategy and navigate the negotiation process when securing funding. Students will also gain insight into how biomedical ventures are established, nurtured and scaled. How raised funds are used for growth of the new venture, how people are hired and retained, and what is needed to ensure the stability of a new venture.

BIOMEDIN 711: Business Basics | Principles for Pragmatic Entrepreneurship

This course provides an introduction to the essentials of running and managing a startup company. Students will develop skills in strategic planning, and business development to drive growth and market success. Students will evaluate tools for financial planning, budgeting, and forecasting to make informed business decisions. This course will also focus on effective leadership and team management, including managing conflicts and challenges, building company culture, as well as human resources management.

Term 3: Business Model and Pitch Development

Elective Options*

An Introduction to Artificial Intelligence for Healthcare Entrepreneurs

This course will provide the students with foundational knowledge and skills to take advantage of artificial intelligence (AI) tools in developing practical solutions for health-related applications. It will cover an introduction to the main paradigms of machine learning and AI, main inflection points in development of AI, and scripting skills to train/deploy models based on available foundational/pre-trained models.

Complexity Theory and Biomedical Innovation

This elective course introduces entrepreneurship learners to complexity theory through a healthcare lens. A complex system is inherently adaptable within a range of conditions that may change in response to a change in context. This course will include case studies to illustrate leadership, innovation and management challenges and how to overcome them.

Special Topics in Biomedical Innovation

An individual reading course on an advanced topic in biomedical innovation. A student may register only once in this course with the permission of the Program.

**The program endeavours to deliver the above program electives pending final approval from the Graduate Program Curriculum Committee. These are not yet published in the School of Graduate Studies Calendar for student enrollment.*
