

**MDSC 517**  
**Introduction to Biotechnology Business and Profession**

**Instructors**

Derrick Rancourt ([rancourt@ucalgary.ca](mailto:rancourt@ucalgary.ca); Course Coordinator)

**Office Hours/Policy on Answering Student Emails**

Wednesdays, 1-4pm, HMRB G436C

Emails will be responded to within 24 hours of being received.

**Teaching Assistants:**

Tarryn Bourhill ([tarryn.bourhill@ucalgary.ca](mailto:tarryn.bourhill@ucalgary.ca))

**Time and Location:**

Lectures: Mondays, Fridays 1:00-2:20pm (HSC G384)

Tutorials: Wednesdays 1:00-2:00pm (HSC G384)

Please consult course schedule to confirm location of individual sessions.

**Prerequisite/Co-Requisite:**

Registered in BHSc program or permission from instructor.

**Course Description:**

Are you interested in pursuing a career in biotechnology but don't know where to start? This course is for you. It will introduce students to how the biotechnology sector works and how you can fit into it. Not only will it overview the biotechnology sector from several perspectives (product development, regulatory, intellectual property, market analysis, business, and management), it will also review different career paths in biotech and various career entry strategies. and career perspectives.

**Overarching Theme**

This course will use a blended learning approach. The Monday class will comprise a flipped classroom approach where students will discuss biotechnology business topics based upon an assigned chapter reading. The Wednesday tutorial will comprise case study/paper review discussions. The Friday class will involve lectures delivered by instructors and peers related to career paths in biotechnology.

**Global Objectives**

- Understand the biotechnology sector from a business and profession perspective.

**Learning Objectives**

By the end of this course, students will be able to:

- Appreciate the product development process
- Recognize the meaning of markets
- Interpret patents
- Evaluate the investment worthiness of a mid-cap biotech company
- Be familiar of different career paths in the biotechnology sector

## Required Textbook

Friedman Y. Building Biotechnology: Business, Regulations, Patents, Law, Politics, Science. Logos Press. 4<sup>th</sup> Edition (3<sup>rd</sup> Edition is also acceptable (and cheaper!))

## Case Studies

Various journal articles will be assigned for tutorial discussion

## A Note regarding readings (include this statement, if applicable)

A list of required readings for all course sections will be outlined on D2L and links and documents will be made available, where possible. Required readings have been chosen carefully to inform you and enhance the lecture material. **Students are REQUIRED to complete assigned readings BEFORE each lecture.** Instructors will proceed in class on the assumption that students have read completely the assigned readings. Students should be aware that many of the readings they will be assigned may be of an unfamiliar nature and style. Students should allot sufficient time to allow for several reads of the assigned material.

## Evaluation

The University policy on grading and related matters is described in section F of the 2019-2020 Calendar.

In determining the overall grade in the course, the following weights will be used:

| Assignments                           | Due Date | Grade |
|---------------------------------------|----------|-------|
| Career Presentation                   | Varies   | 20%   |
| Team Business Plan & Pitch            | Nov 4    | 30%   |
| Public Company Evaluation             | Dec 6    | 25%   |
| Teaching and Evaluating Participation | Varies   | 15%   |
|                                       | Weekly   | 10%   |

There is no final exam. A student's final grade for the course is the sum of the separate assignments. It is not necessary to pass each assignment separately in order to pass the course. In the absence of medical or other documented reasons, the instructor reserves the right to award an 'Incomplete'.

## A Note regarding Writing Assignments:

Writing skills are important to academic study in all disciplines. In keeping with the University of Calgary's emphasis on the importance of academic writing in student assignments (section E.2 of 2019-20 Calendar), writing is emphasized, and the grading thereof in determining a student's mark in this course. The Bachelor of Health Sciences values excellence in writing. Competence in writing entails skills in crafting logical, clear, coherent, non-redundant sentences, paragraphs and broader arguments, as well as skills with the mechanics of writing (grammar, spelling, punctuation). The University of Calgary offers a number of instructional services through the Students' Success Centre's Writing Support Services (<http://www.ucalgary.ca/writingsupport/>) for students seeking feedback on assignments or seeking to improve their general writing skills. Students are **strongly encouraged** to take advantage of these programs.

## Grading Scheme:

| Letter Grade | Description                          | Percentage |
|--------------|--------------------------------------|------------|
| A+           | Outstanding performance              | 97-100     |
| A            | Excellent performance                | 90-96      |
| A-           | Approaching excellent performance    | 85-89      |
| B+           | Exceeding good performance           | 80-84      |
| B            | Good performance                     | 75-79      |
| B-           | Approaching good performance         | 70-74      |
| C+           | Exceeding satisfactory performance   | 65-69      |
| C            | Satisfactory performance             | 60-64      |
| C-           | Approaching satisfactory performance | 57-59      |
| D+           | Marginal pass                        | 54-56      |
| D            | Minimal pass                         | 50-53      |
| F            | Did not meet course requirements     | 0-49       |

### Missed Components of Term Work:

**At each instructor's discretion, late assignments will not be accepted and will automatically receive a mark of zero. There will be NO exceptions to this policy.**

Extensions **will NOT be granted** on any assignments or assessed components in MDSC 517. The only exceptions to this are those in keeping with the University Calendar (debilitating illness, religious conviction, or severe domestic affliction) that are received in writing and with supporting documentation. Traffic jams and late or full buses are common events in Calgary and are NOT acceptable reasons for late arrivals to class, meetings and examinations. Please note that while absences are permitted for religious reasons, students are responsible for providing advance (14-day) notice and adhering to other guidelines on this matter, as outlined in the University Calendar (<https://www.ucalgary.ca/pubs/calendar/current/e-4.html>).

### Brightspace by Desire2Learn (D2L)

Brightspace (by D2L) is located on the University of Calgary server and will be used extensively for communication with students. **It is the student's responsibility to ensure that they receive all posted communications and documents and that they receive emails sent by instructors or fellow students through D2L.** Only your @ucalgary.ca email address may be linked to D2L. Please ensure that you are regularly checking your @ucalgary.ca account.

A laptop, desktop, tablet or mobile device is required for D2L access. If you need help accessing or using D2L, please visit the Desire2Learn resource page for students: <http://elearn.ucalgary.ca/d2l-student/>.

### Policies Governing the Course:

#### Attendance

Attendance at each session is strongly recommended as 10% of the final grade is based upon participation in class discussions.

#### Conduct During Lectures/Discussions

The classroom should be respected as a safe place to share ideas without judgement - a community in which we can all learn from one another. Students are expected to conduct themselves in a mature and

courteous manner during ALL lectures. Students are expected to frame their comments and questions to lecturers in respectful and appropriate language, always maintaining sensitivity towards the topic.

**Students are expected to take notes during each session and should not rely solely on material supplied by the instructors.**

### **Electronic Devices**

The Bachelor of Health Sciences program aims to create a supportive and respectful learning environment for all students. The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. However, research studies have found that inappropriate/off-topic use of electronic devices in the classroom negatively affects the learning of both the user and those sitting nearby. Students are to refrain from accessing websites that may be distracting for fellow learners (i.e. personal email, Facebook, YouTube).

Students are responsible for being aware of the University's Internet and email use policy, which can be found at <https://www.ucalgary.ca/policies/files/policies/electronic-communications-policy.pdf>

Cell phones (or similar devices) should **be turned off** (not merely silent) upon entering the classroom. Sending/receiving text messages or leaving the class to take calls is disruptive to the entire class and will not be tolerated unless absolutely necessary. Students who disregard this rule during lectures or tutorials will be asked to leave. These items are not permitted under any circumstance during exams/quizzes, etc.

### **Copyright**

It is the responsibility of students and professors to ensure that materials they post or distribute to others comply with the Copyright Act and the University's Fair Dealing Guidance for Students ([library.ucalgary.ca/files/library/guidance\\_for\\_students.pdf](http://library.ucalgary.ca/files/library/guidance_for_students.pdf)). Further information for students is available on the Copyright Office web page (<http://library.ucalgary.ca/copyright>)

### **A Note Regarding Instructor Intellectual Property**

Generally speaking, course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the professor(s). These materials may **NOT** be reproduced, redistributed or copied without the explicit consent of the professor. **The posting of course materials to third party websites such as note-sharing sites without permission is prohibited.** Sharing of extracts of these course materials with other students enrolled in the course **at the same time** may be allowed under fair dealing.

### **Academic Accommodations Based on Disability or Medical Condition**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/).

### **Accommodations on Protected Grounds other than Disability**

Students who require an accommodation in relation to their coursework based on a protected ground other than disability, should communicate this need, preferably in writing, to their instructor or to the designated BHSc program contact, Mrs. Jennifer Logan ([jljlogan@ucalgary.ca](mailto:jljlogan@ucalgary.ca)), or to Dr. Ebba Kurz, Associate Dean, Undergraduate Health and Science Education, Cumming School of Medicine. The full policy on Student Accommodations is available at:

<http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>.

### **Academic Misconduct**

The University of Calgary is committed to the highest standards of academic integrity and honesty. The University of Calgary has created rules to govern all its members regarding the creation of knowledge and the demonstration of knowledge having been learned. For information on academic misconduct and its consequences, please see the University of Calgary Calendar at

<http://www.ucalgary.ca/pubs/calendar/current/k.html> Students are expected to be familiar with these standards and to uphold the policies of the University in this respect. Please know that the University and the Cumming School of Medicine take these rules seriously. **All incidences of academic dishonesty in this course, such as cheating and plagiarism, will be reported to the Associate Dean for investigation;** infractions will be noted on the record of a student found to be guilty.

### **Recording of Lectures**

Audio or video recording of lectures is prohibited except where explicit permission has been received from the instructor.

### **Other Important Information**

#### **Freedom of Information and Protection of Privacy Act**

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

### **Appeals**

If there is a concern with the course, academic matter or a grade, first communicate with the instructor. If these concerns cannot be resolved, students can proceed with an academic appeal, as per Section I of the University Calendar. Students must follow the official reappraisal/appeal process and may contact the Student Ombuds' Office (<http://www.ucalgary.ca/ombuds>) for assistance with this and with any other academic concerns, including academic and non-academic misconduct. Students should be aware that concerns about graded term work may only be initiated **within 10 days** of first being notified of the grade. <https://www.ucalgary.ca/pubs/calendar/current/i-2.html>

### **Resources for Support of Student Learning, Success, Safety and Wellness**

|                         |   |
|-------------------------|---|
| Student Success Centre  | <a href="http://www.ucalgary.ca/ssc/">http://www.ucalgary.ca/ssc/</a>                       |
| Student Wellness Centre | <a href="http://www.ucalgary.ca/wellnesscentre/">http://www.ucalgary.ca/wellnesscentre/</a> |
| Distress Centre         | <a href="http://www.distresscentre.com/">http://www.distresscentre.com/</a>                 |
| Library Resources       | <a href="http://library.ucalgary.ca">http://library.ucalgary.ca</a>                         |

### **Wellness and Mental Health Resources**

The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the excellent mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370 MacEwan Student Centre, <https://www.ucalgary.ca/wellnesscentre/services/mental-health-services>) and the Campus Mental Health Strategy (<http://www.ucalgary.ca/mentalhealth/>).

**Student Ombuds' Office**

The Student Ombuds' Office supports and provides a safe, neutral space for students. For more information, please visit [www.ucalgary.ca/ombuds/](http://www.ucalgary.ca/ombuds/) or email [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca)

**BHSc Student Faculty Liaison Committee (SFLC)**

The BHSc SFLC, with elected representatives from all majors, serves to raise issues of interest to BHSc students to the program administration, including items pertaining to curriculum, scheduling and events. A list of current representatives can be found on the BHSc website.

**Student Union (SU) Information**

The SU Vice-President Academic can be reached at (403) 220-3911 or [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca); the SU representatives for the Cumming School of Medicine can be reached at [medrep1@su.ucalgary.ca](mailto:medrep1@su.ucalgary.ca) or [medrep2@su.ucalgary.ca](mailto:medrep2@su.ucalgary.ca).

**Student Success Centre**

The Student Success Centre provides services and programs to ensure students can make the most of their time at the University of Calgary. Our advisors, learning support staff, and writing support staff assist students in enhancing their skills and achieving their academic goals. They provide tailored learning support and advising programs, as well as one-on-one services, free of charge to all undergraduate and graduate students. For more information visit: <https://www.ucalgary.ca/student-services/student-success>

**Emergency Evacuation/Assembly Points**

As part of the University of Calgary Emergency Evacuation plan, students, faculty, and staff should locate the closest Assembly Point in case of Fire Alarm. Safety signage is posted throughout the campus showing the locations and the possible route to these locations. All students, faculty, and staff are expected to promptly make their way to the nearest Assembly Point if the Fire Alarm is activated. No one is to return into campus facilities until an all clear is given to the warden in charge of the Assembly Area. For more information, see <http://www.ucalgary.ca/emergencyplan/node/55>  
<https://www.ucalgary.ca/emergencyplan/building-evacuation/assembly-points>

**Safewalk**

Campus security will escort individuals, day or night, anywhere on campus (including McMahon Stadium, Health Sciences Centre, Student Family Housing, the Alberta Children's Hospital and the University LRT station). Call 403-220-5333 or visit <http://www.ucalgary.ca/security/safewalk>. Use any campus phone, emergency phone or the yellow phone located at most parking lot pay booths. Please ensure your personal safety by taking advantage of this service.

## Class Schedule

The following is a list of topics for class, associated readings, and assignment / exam due dates. Please note that unforeseen circumstances may cause changes to the schedule with respect to the timing of topics and readings. Students will be notified of all changes in a timely manner by way of email and D2L announcements.

| Date     | Module / Topics                 | Instructor | Readings      | Assignments & Due Dates |
|----------|---------------------------------|------------|---------------|-------------------------|
| 06/09/19 | Introductions/Entrance Survey   | DER        |               |                         |
| 09/09/19 | Icebreaker                      | DER        | Chapters 1&2  |                         |
| 11/09/19 | LinkedIn Workshop               | TB         |               |                         |
| 13/09/19 | Assignments                     | DER        |               |                         |
| 16/09/19 | Technologies                    | DER        | Chapters 5&6  |                         |
| 18/09/19 | Paper Discussion Example        | TB         |               |                         |
| 20/09/19 | Brainstorming                   | DER        |               |                         |
| 23/09/19 | Networking Workshop             | DER        | Chapters 4&8  |                         |
| 25/09/19 | Drug Development Paper          | TB         |               |                         |
| 27/09/19 | Clinical Trials Discussion      | DER        |               |                         |
| 30/09/19 | IP Workshop                     | DER        | Chapters 7&14 |                         |
| 02/10/19 | IP Paper                        | TB         |               |                         |
| 04/10/19 | Licensing Workshop              | DER        |               |                         |
| 07/10/19 | BP: R&D Champion Panel          | DER        | Chapter 12    |                         |
| 09/10/19 | Company Creation Paper          | TB         |               |                         |
| 11/10/19 | BP: IP Champion Panel           | DER        |               |                         |
| 16/10/19 | Marketing Paper                 | TB         |               |                         |
| 18/10/19 | Career Presentations            | DER        |               |                         |
| 21/10/19 | BP: Market Champion Panel       | DER        | Chapter 11    |                         |
| 23/10/19 | Finance Paper                   | TB         |               |                         |
| 25/10/19 | BP: Finance Champion Discussion | DER        |               |                         |
| 28/10/19 | Career Presentations            | DER        | Chapter 10    |                         |
| 30/10/19 | Business Development            | TB         |               |                         |
| 01/11/19 | Business Plan/Pitch Preparation | DER        |               |                         |
| 04/11/19 | Business Plan Presentations     | DER        | Chapter 15    | Biz Plan/Pitch          |
| 06/11/19 | Management Paper                | TB         |               |                         |
| 08/11/19 | Market Sections Discussion      | DER        |               |                         |
| 18/11/19 | Career Presentations            | DER        | Chapter 17    |                         |

|          |                             |     |            |            |
|----------|-----------------------------|-----|------------|------------|
| 20/11/19 | Building Biotech Paper      | TB  |            |            |
| 22/11/19 | Building Biotech Discussion | DER |            |            |
| 25/11/19 | Finance Sections Discussion | DER | Chapter 18 |            |
| 27/11/19 | Investment Paper            | TB  |            |            |
| 29/11/19 | Investment Discussion       | DER |            |            |
| 02/12/19 | Careers Discussion          | DER | Chapter 19 |            |
| 04/12/19 | Biotech Career Paper        | TB  |            |            |
| 06/12/19 | Exit Interview              | DER |            | Term Paper |