

CHEM194: Entrepreneurship in the Sciences

BISP194: Biotech Entrepreneurship

BGGN285: Biotech Entrepreneurship

Welcome to the Course(s)

You might be registered under CHEM194, BISP194 or BGGN285. All three courses have a similar agenda and entail the same in-class curriculum, although the assignments may differ slightly depending on whether you are a Chemistry & Biochemistry or Biology major. In the following I refer to the three courses as the singular, 'course'.

The course is designed to introduce you, an undergraduate with senior standing or recent graduate, to aspects of business and to the intersection of entrepreneurship and scientific innovation.

Will we study and discuss aspects of a business in a chemistry-enabled, materials-enabled or biotechnology area and to the coupling of entrepreneurship with scientific innovation.

I have attempted to distil my own business experiences in the chemistry, materials and biotechnology fields into a set of learnings about issues that have been consequential to one or more of the companies in which I have been involved. These learnings are structured onto key topics, such as intellectual property, finances and financings, negotiations and deals. We consider each of these topics, both in class and via the assignments.

Much of my own motivation for dedicating substantial time to working with you, is my interest in innovation. I like to consider what situations, what frameworks, and what tools can be most useful in encouraging the development of new ideas, especially as relate to business. We will explore certain of these in class.

It can be difficult, as an undergraduate, to have the opportunity to sample a work environment in industry, to develop a sense of the spectrum of career opportunities that are possible in the commercial realm. Whether or not you are already committed to medical, dental or pharmacy school, or towards an academic track, it can be valuable to learn something of the range of job functions and tracks that industry offers. In this course I share some of my own experiences in companies, both large and small.

Course Information

Course Description	<i>This course provides an overview of key topics that are important in the creation and early growth of a new business entity in the chemistry-enabled, materials-enabled or biotechnology fields.</i>
Credits	2
Instructor	John M Newsam

Communication With Me

The best way of communicating with me is by email, to my UCSD email address, jnewsam@ucsd.edu (even if I happen to send you an email from another email address, please use jnewsam@ucsd.edu for any course-related communications).

Course Learning Outcomes

I hope that this course will lead to you realizing one or more of: (i) a high-level understanding of elements that can be important in determining business success, (ii) igniting an interest in early company efforts, (iii) appreciating better some of the opportunities that a career in industry and business can offer, (iv) developing approaches and tools that can help you in assessing and developing an opportunity, and (v) gaining more confidence in your own ability to innovate, either as an individual or as part of a small team.

Course Format

Each Monday evening class includes a presentation, a worksheet activity (which, depending on the module, will be undertaken individually or with an assigned partner), Q&A, and a description of the week's assignment(s).

The situation under the COVID-19 pandemic is still fluid. For at least the first two sessions (through January 29th – Monday January 17th is a holiday and there is no class that day) the course is fully online and predominantly synchronous. If UCSD permits, subsequent classes will be in person, in Bonner Hall Room 2130.

Each student is expected to attend each class, to participate in the worksheet activity, and to complete each week's assignment(s). A student who is, for some reason, unable to attend the class in a given week is expected to let me know ahead of time and to make up missed material. For this purpose, each class will be recorded and posted.

Additionally, I plan to be available for an online 30 minute office hour session, to discuss any aspect of the week's material, or to field any questions (whether or not related to the week's materials or the class).

Synchronous Online Lectures:

Our weekly class is on each Monday during Winter quarter from 6pm to about 7:15pm
Join URL: <https://ucsd.zoom.us/j/6141528074>

Note that we have no class on:

Monday January 17th 2021 (Martin Luther King Day)

Monday February 21st 2021 (President's Day)

Synchronous Office Hours:

I plan to be available for office hours on Wednesdays from 4pm to at least 4:30pm
Join URL: <https://ucsd.zoom.us/j/99422179289>

Note that depending on interest and scheduling conflicts, the scheduling of office hours might be changed.

Asynchronous (Online) Course Elements:

The slides that we use in each class, together with the class worksheet(s) will be available in Canvas shortly following each class.

I also intend to record each class and to post the video, so that if you have to miss a class for some reason you will have access to what we covered (but please note that if you will miss a synchronous class you should let me know ahead of time).

UC San Diego's Learning Management System: <https://canvas.ucsd.edu>

Login: UC San Diego Active Directory credentials

Class itself is in Monday evenings. In class, we will typically complete an exercise using a worksheet (although as I gain more experience in giving the course virtually, I may make some course adjustments). At the end of class I will provide some further recommended reading (strictly optional) and the assignment(s) for the period prior to the subsequent class.

For some weeks, there will be two separate assignments. In the week preceding a week in which there will be no class because of a holiday, I will provide two assignments, one due by noon on the following Saturday and the second due by noon on the Saturday of the subsequent week (as per course schedule following). In some weeks, you will undertake the assignment with a partner (whom I will assign). As above, I plan to be available for office hours for a period on Wednesdays.

Overall Course Expectations

Specific Expectations:

My expectations of you as a participant in this course:	Your expectations of me as the faculty and instructor for this course:
Read the syllabus & keep current with course information	Communicate information and any course adjustments
Attend & be on time for each class (synchronously - unless you let me know ahead of time that such is not possible, in which case view the Zoom recording)	Be on time for each class
Be engaged and participate actively in each class, and be flexible if course topics change from plan	Be adequately prepared & cover the subject matter in each class
Strive to be creative & contribute ideas	Strive to establish an environment suitable for learning course topics & for encouraging creativity
Complete assignments and submit on time	Respond promptly to emails and provide timely feedback on assignments
Provide feedback and suggestions for course or content improvement	Listen to feedback and work to accommodate suggestions for course improvements
Follow up further if interested	Answer questions, point to additional resources & discuss directions for further follow up

General Expectations Common to All Courses:

What you can do to support your success in the course:	What I will do to support your success in the course:
Contribute to the learning environment with fairness, cooperation, and professionalism	Establish a learning environment with fairness, cooperation and professionalism, and take action if these principles are violated
Treat your classmates, instructional assistants and myself honestly and ethically	Treat you honestly and ethically, and address any concerns you might have
Commit to excel with integrity ¹ . Have the courage to act in ways that are honest, fair, responsible, respectful & trustworthy.	Uphold integrity standards and create an atmosphere that fosters active learning, creativity, critical thinking, and honest collaboration

Manage your time, so you can stay on track with the course and complete tasks on time	Only assign work that is vital to the course, and work to meet the standard credit hour allotment for the course
Communicate with me if you determine that a deadline cannot be met due to extenuating circumstances	Consider requests for adjustments and make reasonable exceptions available to all students when approved

1. Please read UC San Diego’s [Policy on Integrity of Scholarship](#) and take the [integrity pledge](#)

Course Materials and Tools

Beyond the requirement of having a suitable laptop, there are no technology requirements for this course. There is also no formal textbook. For each of the topics we will, in sequence, address in class, I will point you towards supplementary texts which you might find useful should you be interested to dig deeper into one of the topics which we will cover.

I am in the throes of crafting a book based loosely around the course material which I anticipate will become, for future course offerings, required course material. I do plan to share sections from this book, as appropriate.

Text/Readings/Other Material

The following two books are only loosely connected to this course, but I list them here in case you might be interested.

‘Kick-Start - Realizing Best Benefits from a Science, Technical or Business Internship’

John M Newsam (2019); available from Amazon:

<https://www.amazon.com/dp/1727469577>

A practical guide for the student or early-career professional seeking an internship and for a company considering engaging an intern. The work details an effective approach that has been honed through approaching 100 internship projects. Succinct and very readable, this guide simplifies the process of engaging or being engaged as an intern. It outlines how to find an internship, how to position yourself to be selected, how to do well in an interview, and how to make the most of your experience once hired. For the company, it encourages the practice of offering internships, provides guidance in how to find suitable candidates, and outlines the logistics involved in making each internship an all-round success.

‘Out in Front: Making Your Mark with a Scientific Presentation’ John M Newsam (2020); available from Amazon: <https://www.amazon.com/dp/1793268282>
Making an effective presentation can increase the impact of your research contributions. Award-winning author John M Newsam provides guidance for early-career scientists in all aspects of planning, crafting and then delivering a scientific presentation, based on his career of lecturing on a broad range of research and business topics. Amusing personal anecdotes illustrate key topics. A succinct, open layout streamlines reading, reference and note-taking.

Assignments and Grading

Summary of Grade Criteria

Assignment	Weight	Due Date
Participation (attendance, engagement, worksheet activity)	20%	In class (or, for excused absence, by make-up following)
Assignments	40%	Saturdays at noon after class
Final assignment	40%	Saturday March 6 at noon
	100%	

Grading Scale

The grading scale conforms with the UCSD ‘[Academic Regulations and Policies](#)’, namely: A, excellent; B, good; C, fair; D, poor; F, fail; I, incomplete (work of passing quality but incomplete for good cause); and IP (In Progress). The designations P (Pass) and NP (Not Pass) are used in reporting grades for some undergraduate courses (P denotes a letter grade of C– or better. W is recorded on the transcript indicating the student withdrew or dropped the course sometime after the beginning of the fifth week of a quarter. I may assign a plus (+) and minus (–) suffixes to an A, B, and C grade.

Class participation, regular assignments and the final assignment will contribute respectively 20%, 40% and 40% to the final grade.

Class participation is evidenced by attendance (or, for an excused absence, watching the class recording), by contributing questions or ideas when solicited, and by completion of the class worksheet.

Each weekly assignment is scored out of a total of 5 points, or 2.5 points in cases in which two weekly assignments are given. Submitting an assignment late reduced the total possible score to 4 points (or 2 for one of two double assignments). For an assignment completed as a team, both team members will be assigned the same score.

The final assignment is scored differently, according to eight separate criteria (which will be explained in class), with the final score being computed from the eight separate scores. In part

as a result of this more detailed scoring system, marks for the final assignment are much lower than for the weekly assignments (and the thresholds to be reached for a given grade are then correspondingly lower).

Grading Procedure and Feedback

Each student is graded and evaluated on an absolute scale, so that the final grade does not depend on how well or how poorly other students will have performed.

Receiving an assignment late is a substantial inconvenience, and the maximum score possible for such an assignment is, as above, reduced. I will make allowances for assignments that are turned-in late as a result of an emergency or other substantial issue, provided that I am appropriately and promptly notified.

I will score each assignment, such that scores are viewable on Canvas, generally prior to the subsequent class (although depending on my personal schedule, reviewing and grading assignments may occasionally take longer than the two-day period between the submission deadline and the next class).

I will generally assign extra credit to any student that undertakes an internship with me associated with the course (as per following).

If you have questions about an assignment, or indeed about any other matter, I encourage you to attend office hours. You can also send me an email, to my UCSD email address, jnewsam@ucsd.edu.

Other Attendance and Participation Notes

For a student based in a different time zone or otherwise unable to be present at the specific class time, I will discuss how best to record participation (beyond completion of the worksheet activity).

I will comply with UCSD's policy on [religious observance](#).

Internship Opportunity

In past years, I have made available the possibility of a volunteer internship, under my direct supervision and mentorship, on a topic that is relative to this course.

Further information is provided in [the downloadable .pdf available by clicking here](#).

Instructional Team

I do not have a teaching assistant for this course. I am solely responsible for delivering the course, reviewing and grading assignments, and being available for office hours.

I have full-time regular job elsewhere, as Chief Executive Officer of Tioga Research, so that the hours I can dedicate to this course are generally only outside regular business hours.

The original version of this course was developed with Professor Michael J Sailor and it is possible that he might contribute to one or more of our classes.

Teaching Philosophy

I view my role as an educator more as that of a facilitator and encourager, and less as a presenter of information and facts. I discuss and structure topics which I have found to be important in my business career.

Inclusion Statement

I believe that professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. With the class roster, I am provided with your legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me early in the quarter so that I may make appropriate changes to my records.

I believe that the classroom is a place to expand our knowledge and experiences safely, while being respected and valued. I support the values of UC San Diego to “create a diverse, equitable, and inclusive campus in which students, faculty, and staff can thrive”. I strive to uphold the values articulated by the Office of the Vice Chancellor for Diversity, Equity, and Inclusion: “We believe that true excellence is achieved through productive relationships among people of diverse perspectives. When the collective talents of our students, faculty, and staff at UC San Diego are united in an environment that is open and inclusive, creativity and innovation prospers.” I hope you will join me in creating a class that upholds these values to further enhance our learning as a community.

For more information, please visit: <http://diversity.ucsd.edu>

Campus Resources for Support and Learning

There are a variety of resources available to students at UC San Diego, which are designed to address needs and enhance the student experience.

Learning and Academic Support	
<u>Ask a Librarian: Library Support</u>	<u>Writing Hub Services in the Teaching + Learning Commons</u>
<i>Chat or make an appointment with a librarian to focus on your research needs</i>	<i>One-on-one online writing tutoring and workshops on key writing topics</i>
<u>Course Reserves, Connecting from Off-Campus and Research Support</u>	<u>Supplemental Instruction</u>
<i>Find supplemental course materials</i>	<i>Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses</i>
<u>First Gen Student Success Coaching Program</u>	<u>Tutoring – Content</u>
<i>Peer mentor program that provides students with information, resources, and support in meeting their goals</i>	<i>Drop-in and online tutoring through the Academic Achievement Hub</i>
<u>Office of Academic Support & Instructional Services (OASIS)</u>	<u>Tutoring – Learning Strategies</u>
<i>Intellectual and personal development support</i>	<i>Address learning challenges with a metacognitive approach</i>
Support for Well-Being & Inclusion	
<u>Basic Needs at UCSD</u>	<u>Community and Resource Centers</u> <u>Office of Equity, Diversity, and Inclusion</u>
<i>Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live is encouraged to contact: foodpantry@ucsd.edu basicneeds@ucsd.edu (858) 246-2632</i>	<i>As part of the Office of Equity, Diversity, and Inclusion the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus (858).822-.3542 diversity@ucsd.edu</i>
<u>Counseling and Psychological Services</u>	
<i>Confidential counseling and consultations for psychiatric service and mental health programming</i>	
<u>Triton Concern Line</u>	<u>Get Involved</u>

Report students of concern: (858) 246-1111	Student organizations, clubs, service opportunities, and many other ways to connect with others on campus
Office for Students with Disabilities (OSD)	Undocumented Student Services
Supports students with disabilities and accessibility across campus	Programs and services are designed to help students overcome obstacles that arise from their immigration status and support them through personal and academic excellence

Campus and Course Policies

Course Policies

Health and Well-Being

I am committed to the well-being of each and every course participant and will conform with UCSD’s expectations relative to same.

This course was redesigned so that the academic standards of a face-to-face class can still be maintained under an online or hybrid teaching scenario. However, I well recognize that uncertainty around the COVID-19 pandemic and its impacts, may introduce issues additional to those associated with an altered class scenario. You may, for example, have additional responsibilities at home or at times feel anxious and insecure. I am aware of this potential uncertainty, anxiety, and stress.

Even beyond pandemic issues, throughout your time at UC San Diego you may experience a range of issues that can negatively impact your learning. These may include, by way of example, physical illness, housing or food insecurity, strained relationships, loss of motivation, depression, anxiety, high levels of stress, alcohol and drug problems, feeling down, interpersonal or sexual violence, or grief.

These concerns or stressful events may compromise your academic performance and affect your ability to participate as expected in this class. If there are issues related to coursework that are a source of stress or challenge, please let me know, so that we can discuss potential resolves together.

UC San Diego provides a number of [health and well-being resources](#) to all enrolled students, including:

[Counseling and Psychological Services](#) (858-534-3755)

[Student Health Services](#) (858-534-3300)

[CARE at the Sexual Assault Resource Center](#) (858-534-5793)

[The Hub Basic Needs Center](#) (858-246-2632)

Subject to Change Policy

As we proceed through the course, I may make adjustments to the course content and to the details of class materials, worksheets and assignments, in cases in which I consider the change to be beneficial overall to the value of the course and to enhance the opportunity for student learning.

Letter of Recommendation Policy

I have in the past, on request, written a letter of recommendation. Should I agree to do so in your case (for which I make no ahead-of-time commitment, but feel free to ask when the occasion arises), please keep in mind that I cannot make remarks beyond the limited understanding and appraisal that will develop over the course period. I will get to know a student who undertakes an internship with me substantially better, of course, and I have yet to refuse a letter of recommendation request from someone who has successfully completed an internship project with me.

Campus Policies

UC San Diego policies and statements to be aware of include the following:

- [UC San Diego Principles of Community](#)
- [UC San Diego Policy on Integrity of Scholarship](#)
- [Religious Accommodation](#)
- [Nondiscrimination and Harassment](#)
- [UC San Diego Student Conduct Code](#)

Course Schedule

The topics that we will cover over the quarter are as follows (note that these are subject to possible change – any modification will be conveyed in class):

Session 1	Introduction to Industry, Motivation
Session 2	Basis for (& Establishing) a Business
Session 3	Business Model
Session 4	Intellectual Property
Session 5	Finances & Financings
Session 6	Negotiation & Deals
Session 7	Business Plan (Brief)
Session 8	Launching & Growing a Start-up

The detailed schedule for the course is as follows (note that, as above, the details of the topics, worksheets and assignments are subject to possible change – any modification will be conveyed in class; the due dates will not change):

Date	#	In Class Topic	In Class Worksheet	Assignment A	Assignment B
Monday January 3rd	1	Introduction to Industry, Motivation	Motivation	Identifying a need (1) Due: Sat Jan 8	Identifying a need (2) Due: Sat Jan 8
Monday January 10th	2	Basis for (& Establishing) a Business	Business Concepts	Assessment of Local Biotech Company (team) Due: Sat Jan 15	A technology to sell (team) Due: Sat Jan 22
Monday January 17th		Martin Luther King Day (No Class)			
Monday January 24th	3	Business Model	Business Models or Orthogonal Couplings	More on business models (team) Due: Sat Jan 29	
Monday January 31st	4	Intellectual Property	Intellectual Property	Intellectual Property: US patent 10,190,137 Due: Sat Feb 5	
Monday February 7th	5	Finances & Financings	Financings or Valuations & Financings	Thinking about financings Due: Sat Feb 12	An Investor's Perspective: BioLoggi (team) Due: Sat Feb 19
Monday February 14th	6	Negotiation & Deals	Negotiations	Learning from Past Experiences Due: Sat Feb 19	Developing a Business Opportunity Due: Sat Feb 26
Monday February 21st		Presidents Day (No Class)			
Monday February 28th	7	Business Plan (Brief)	Approaches to Market Size Estimation or Concepts Assessment:	Final Assignment: Crafting a Business Brief Due: Sat Mar 5	
Monday March 7th	8	Launching & Growing a Start-up	Experiences, Perspectives & Learnings	no assignment	