

# CHEM194: Entrepreneurship in the Sciences

## BISP194: Biotech Entrepreneurship

## BGGN285: Biotech Entrepreneurship

### Welcome to the Course(s)

[A .pdf version of this page is available for download by clicking [here](#)]

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 layered onto key topics, such as intellectual property, finances and financings, marketing, 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

<b>Course Description</b>	<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>
<b>Credits</b>	2
<b>Instructor</b>	John M Newsam

## Communication With Me

The best way of communicating with me is by email, to my UCSD email address, [jnewsam@ucsd.edu](mailto:jnewsam@ucsd.edu) (even if I happen to send you an email from another email address, please use [jnewsam@ucsd.edu](mailto: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.

I want all class participants to do well. The level of prior familiarity with certain of the topics we will cover, and the degree of ease with which the course materials will be absorbed will vary from participant to participant. If you feel overly challenged by a topic, please consider attending office hours. Concomitantly, if you feel insufficiently challenged, please let me know so that I can provide you with ancillary content.

## 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).

Classes will be in York 3010 from 6pm. Masks are optional (although we will keep a close watch on the ongoing COVID-19 situation). For the health and safety of fellow class participants, if you do test positive for COVID-19 or are sick, please refrain from coming to class. Instead, please send me an email ([jnewsam@ucsd.edu](mailto:jnewsam@ucsd.edu)) so that I know you will be absent, and then review the class slides, complete and return the in-class worksheet/quiz, and complete the assignment.

Both Monday January 16th and Monday February 20th are holidays and there will be no class on either of those days).

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, the materials for each class will be posted on Canvas.

Additionally, I plan to be available for an online office hour session of up to 30 minutes, 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 In-person Classes:**

Our weekly class is in York 3010 on each Monday during Winter quarter from 6pm to about 7:15pm or 7:30pm.

Note that we have no class on:

Monday January 16th 2023 (Martin Luther King Day)

Monday February 20th 2023 (President's Day)

### **Synchronous Office Hours:**

I plan to be available for office hours on Wednesdays from 4pm to at least 4:30pm (but only if participants have joined earlier).

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.

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

In class on Monday evenings, we will typically complete an exercise using a worksheet/quiz. At the end of class I plan to provide some further recommended reading 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 the 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.

## Missing a Class

If you have to miss a class (for a health reason or another pressing matter), please let me know by email ahead of time ([jnewsam@ucsd.edu](mailto:jnewsam@ucsd.edu)). I allow up to two excused absences (provided you make up as follows) without negative consequences to your grade.

In addition to notifying me of the absence, please:

- (i) Review the slide deck for the class that will be posted on Canvas
- (ii) Complete the in-class worksheet (quiz) (on Canvas)
- (iii) Complete the assignment(s) given in the class (on Canvas)

I also recommend that you ask a fellow class participant to walk you through what was covered in the class.

## Overall Course Expectations

### Specific Expectations:

<b>My expectations of you as a participant in this course:</b>	<b>Your expectations of me as the faculty and instructor for this course:</b>
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:

<b>What you can do to support your success in the course:</b>	<b>What I will do to support your success in the course:</b>
<a href="#"><u>Contribute to the learning environment with fairness, cooperation, and professionalism</u></a>	Establish a learning environment with fairness, cooperation and professionalism, and take action if these principles are violated
<a href="#"><u>Treat your classmates, instructional assistants and myself honestly and ethically</u></a>	Treat you honestly and ethically, and address any concerns you might have
Commit to excel with integrity <sup>1</sup> . 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
	<b>100%</b>	

### 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 (unless there is an excused absence), 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](mailto:jnewsam@ucsd.edu).

### **Other Attendance and Participation Notes**

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 designing and structuring the curriculum, delivering the course, reviewing and grading assignments, and being available for office hours. I may have a volunteer intern working with me on a project related to the course.

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 own 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.

<b>Learning and Academic Support</b>	
<a href="#">Ask a Librarian: Library Support</a>	<a href="#">Writing Hub Services in the Teaching + Learning Commons</a>
<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>
<a href="#">Course Reserves, Connecting from Off-Campus and Research Support</a>	<a href="#">Supplemental Instruction</a>
<i>Find supplemental course materials</i>	<i>Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses</i>
<a href="#">First Gen Student Success Coaching Program</a>	<a href="#">Tutoring – Content</a>
<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>
<a href="#">Office of Academic Support &amp; Instructional Services (OASIS)</a>	<a href="#">Tutoring – Learning Strategies</a>
<i>Intellectual and personal development support</i>	<i>Address learning challenges with a metacognitive approach</i>
<b>Support for Well-Being &amp; Inclusion</b>	
<a href="#">Basic Needs at UCSD</a>	<a href="#">Community and Resource Centers</a>
	<a href="#">Office of Equity, Diversity, and Inclusion</a>
<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: <a href="mailto:foodpantry@ucsd.edu">foodpantry@ucsd.edu</a>   <a href="mailto:basicneeds@ucsd.edu">basicneeds@ucsd.edu</a>   (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   <a href="mailto:diversity@ucsd.edu">diversity@ucsd.edu</a></i>
<a href="#">Counseling and Psychological Services</a>	
<i>Confidential counseling and consultations for psychiatric service and mental health programming</i>	
<a href="#">Triton Concern Line</a>	<a href="#">Get Involved</a>

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

## 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.

Even beyond COVID-19 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	Marketing
Session 5	Intellectual Property
Session 6	Finances & Financings
Session 7	Negotiation & Deals
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 9th	1	Introduction to Industry, Motivation	Motivation	Identifying a Need Due: Sat Jan 14	Identifying an Opportunity Due: Sat Jan 21
Monday January 16th		Martin Luther King Day (No Class)			
Monday January 23rd	2	Basis for (& Establishing) a Business	Business Concepts	Assessment of Local Companies (team) Due: Sat Jan 28	A Technology to Sell (team) Due: Sat Jan 28
Monday January 30th	3	Business Models	Business Models or Orthogonal Couplings	Local Companies Business Models (team) Due: Sat Feb 4	
Monday February 6th	4	Marketing	Approaches to Market Size Estimation or Concepts Assessment:	Social Media Strategy and Campaign Due: Sat Feb 11	
Monday February 13th	5	Intellectual Property	Intellectual Property	Intellectual Property: US patent 10,190,137 Due: Sat Feb 18	An Investor's Perspective: BioLoggi (team) Due: Sat Feb 25
Monday February 20th		Presidents Day (No Class)			
Monday February 27th	6	Finances & Financings	Financings or Valuations & Financings	Thinking about Financings Due: Sat Mar 4	
Monday March 6th	7	Negotiation & Deals	Negotiations	Final Assignment: Crafting a Business Brief Due: Sat Mar 11	
Monday March 13th	8	Launching & Growing a Start-up	Experiences, Perspectives & Learnings	no assignment	