BIO-490 Entrepreneurship in the life sciences

?

This course!

Image: https://techstory.im

Thursdays 8am, Room AAC 1 32

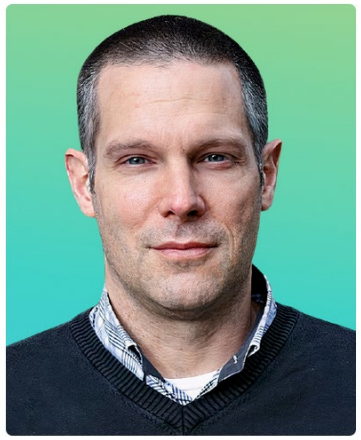
Lecture #1

Intro

Aims:

- Get to know each other (participants, TAs and teacher)
- Get an overview on the course and understand what is expected from you

Story of your BIO-490 team



christoph.merten@epfl.ch

Industrial collaborations & consulting

Roche gsk GlaxoSmithKline

(+ consulting for an undisclosed microfluidics hardware company)

Advisory board

ANACYTE LABORATORIES

Licensing

Microsonicator for genomic applications. Available world-wide at a list price of ~10k US$

han-yi.huang@epfl.ch

PhD student in Persat lab
Sanofi Disease Marketing
Startup experience

Entrepreneurship

Sole scientific founder (2017)

VELABS → (2021) ARAXA BIOSCIENCES → VERAXA

Antibody discovery

Co-founders

Thera Me! (2023)

Personalized cancer therapy

vida.vafaizadeh@epfl.ch

Introduction of course BIO-490 participants

All students to introduce themselves. Describe YOUR personal expectations!

Successful entrepreneurs

…you all know these guys!

Successful biotech entrepreneurs

But do you know them as well?

Anne Wojcicki
Raised 786 M$

Sheila Mikhail
3.86 B$ company value

Carl Hansen
12.65 B$ IPO

The biotech boom is still there and *YOU* could become part of it!
This course will give you a comprehensive introduction into the field

What we expect from you:

- **Teaching goals**:
  - Extract the business models of existing (successful or failed) biotech companies (**5min individual case studies – 35% of your grade**)
  - Getting to know the EPFL support and funding opportunities for startup projects (**write an executive summary and point out commercial potential – 25% of your grade**)
  - Getting from a scientific idea to a professional pitch deck for investors (**10min group presentation – 35% of your grade plus 5% written evaluation of other groups**)

Examples of all deliverables are available on Moodle straight from the start. And you will get examples here in the course:

BIO-490 deliverables and assessment: Individual case study (35%)

BIO-490 5min individual case study template (details next week)

- **Problem 1-2 slides**
- **Solution and USP 1-2 slides**
- **Business model 1-2 Slides**

BIO-490 deliverables and assessment: Funding application (25%)

School of Life Sciences

https://catalyze4life.epfl.ch/

Project Title:		**TTO Technology Number or Patent Reference Number if Available**
Researcher name (s) and contacts (Faculty/ies), Institute/s)		
Technology Transfer manager	**Your contact at the TTO**	
Catalyze4Life manager	**Gautam Maitra**	
Supporting PI Authorizing Application		
Project type and requested funding: (please, indicate the amount of funding per category)	Preclinical Proof of Concept/Validation (CHF): Clinical Proof of Concept (CHF):	**Comments**
Executive Summary (Brief description of technology/invention; maximum 200 words describing the novelty of the technology and the main differentiator against a market benchmark):		
Brief description of commercial potential of project (few lines referring to specific application/s and market)		
How Catalyze4Life will facilitate the technology transfer of your technology: Indicate tangible and applicable deliverables previewed post Catalyze4Life support (e.g. New IP, facilitate Licensing-partnerships-Start up, etc)		

Only executive summary and commercial potential!

BIO-490 deliverables and assessment: Group pitch (35%)

BIO-490 10min group presentation template

- **Fancy title (eye catcher), simple take home message (“we know the very best therapy for each cancer patient”) 1 Slide**
- **Problem to be addressed, field and technical background of the invention 1-2 Slides**
- **Unique Selling Point, comparison with existing approaches 1 Slide**
- **Market and business model 2 Slides**
- **IP, Patents, FTO and regulatory issues 1-2 Slides**
- **Work plan, milestones, required time & budget 1 Slide**
- **Team (pointing out skills and role in future startup), potentially also including missing skills and expertise that will be filled by externals 1 Slide**

…also, be prepared for follow-up questions (potentially many)!

BIO-490 deliverables and assessment: Participation & feedback (5%)

BIO-490 group pitch evaluation sheet

Presenting group and date of presentation:

Evaluating group:

Strong points:

Weak points:

How well (on a scale from 1-10) were the following points covered and presented?

Overall quality of the slides:

Overall quality of the presentation:

Description of the problem, solution, USP:

Market analysis and business model:

Work plan and required time & budget:

Presentation and fit of the team members:

Additional comments:

Course content and schedule 2024

Lecture #/Date	Topic	Details	Seminar tasks
1/ 12.09	**General Introduction**	Aims of the course, expectations, tasks and assessments General proceeding	Watch Elisabeth Holmes Documentary (Theranos story)
2/ 19.09	**Roadmap from academic idea to startup**	template business example, Learn about all the steps needed to translate a scientific idea into a startup and what your pitch deck should include => Focus on Value proposition and Business model	Define customer value proposition, USPs and business model (= business example) of Theranos Grouping and assignment of individual presentations
3/ 26.09	**Market analysis**	Market size, competitors, customer models, growth and scalability,	Introduction into GlobalData, Find market data on your business example & group innovation
4/ 03.10	**Corporate planning**	Business models, exit strategies, website & visibility,	Define business example of your group innovation, define markets and competitors
5/ 10.10	**Business examples**	Business examples 1-4, detailed feedback	
6/ 17.10	**Intellectual property and other legal issues**	Business examples 5-8 Patents – facts, data bases, examples Concept of freedom to operate, regulatory hurdles, etc.	Find & analyze patents in your field
24.10 – no lecture!			
7/ 31.10	**Timelines & initial steps**	Business examples 9-12 Milestones and finance plan from idea to startup/product	Prepare milestones and financial plan for your startup idea
8/ 07.11	**Finalizing the pitch deck**	Business examples 13-16 Recap: Detailed analysis of individual case studies, last year's best group pitch and TheraMe pitch	Finalize pitch deck
9/ 14.11	**How to secure funding**	Business examples 17-20 Public funding programs, investments, venture capital, EPFL programs	
11/ 21.11	**Guest speaker Daniel Alpern (EPFL entrepreneur)**	Business examples 21-24 Introducing Catlyze4Life	Prepare Executive Summary and commercial potential in C4Lformat
12/ 28.11	**Guest speakers Gautam Maitra (EPFL C4L)**	Introducing EPFL Launchpad Initiative	
13/ 05.12	**Pitches Groups A (e.g. 4-6)** **Feedback Groups B (e.g. 1-3)**	10min pitches with non-presenting students to provide written feedback, Submission of Executive Summary and commercial potential in C4Lformat	Prepare written feedback on other group's pitches
14/ 12.12	**Pitches Groups B (e.g. 1-3)** **Feedback Groups A (e.g. 4-6)**	10min pitches with non-presenting students to provide written feedback, Submission of Executive Summary and commercial potential in C4Lformat	
15/ 19.12	**Trophy Award & Feedback**		

Brief Excercise

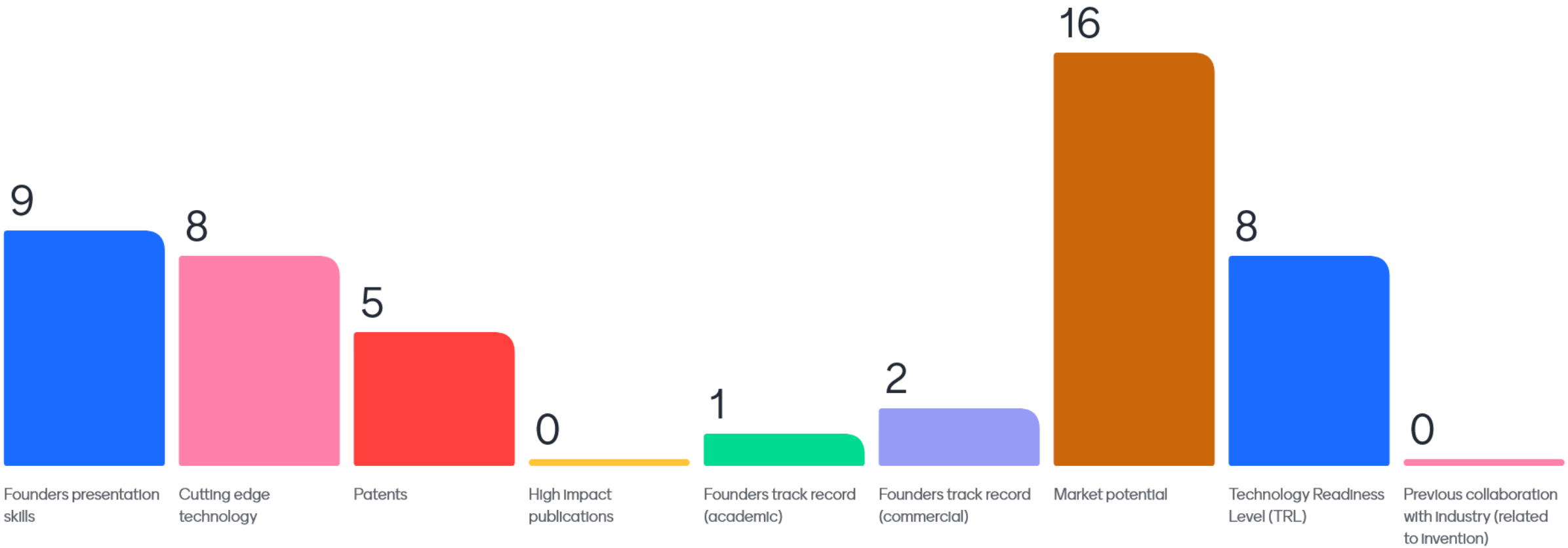
For one second just change roles and imagine what *YOU* would look for when deciding on investing into or rejecting a startup proposal?

What do investors look for?

Mentimeter
3509 8189

39 responses

What do you think is most important for getting investments (3 votes)?



Difference between scientific achievement/discovery and commercially successful product

Lab

Difference between scientific achievement/discovery and commercially successful product

This course!

Image: https://techstory.im

Difference between scientific achievement/discovery and commercially successful product

- Discovering entirely new disease mechanisms or genetic factors that are not easily druggable, are unlikely to be readily translatable into a startup
- A high throughput screening approach for which a patent was filed 10 years ago (discovery and working principle), but which will still require 10 years of optimization for routine use, does not generate any revenue during the patent life time
- A procedure that cures cancer but costs 10mio CHF per treatment is very unlikely to ever get covered by public health insurances

⇨ Requirements for a successful startup are very different from that for a good publication. They are centered around a **marketable product,** the **needs of the customers** and **strict timelines**

<u>Important points to address:</u>

- Customer benefit
- Market size
- Required time to product launch
- Required budget and resources, IP status
- Method or product?

⇨ In this course we will go through all relevant points for preparing a startup pitch and a funding application, using hypothetical and existing lab inventions

Preparing your group pitch

Academic Science & Technology

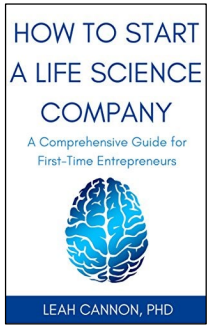
Quick reality check: Would anybody pay for this and if so, who and why?

Commercialization

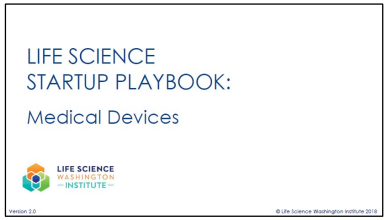
1. What is the **USP**? Is there a **market** and how big is it?
2. How do I address my **customers**, what is the **business model**, is it **scalable**?
3. What is needed (**time, budget and resources**) to develop a minimal marketable product (**MMP**)?
4. Do I have **patent protection** and **freedom to operate**? Any other **legal or regulatory hurdles**?
5. How to secure **funding**?

Your pitch deck and your funding application should address all these points! During the course we will go through real world and hypothetical examples and provide you with the necessary skills…

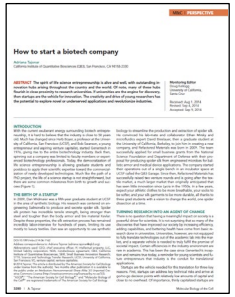
Recommended reading



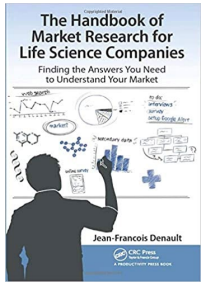
- How to start a life science company by Leah Cannon; ISBN 9780648142324. **A good overview for beginners, including regulatory aspects, funding and many example companies in EU and US.**



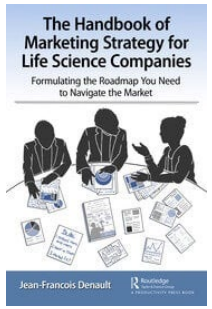
- Life Science Washington Playbook: www.lswinstitute.org/playbook/. **Free resource summarizing the roadmap towards a startup. Similar to this course but from another angle/ person's view.**



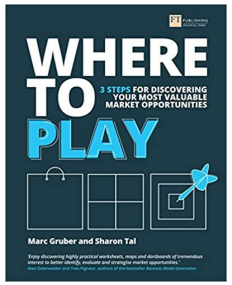
- Tajonar A. How to start a biotech company. *Mol Biol Cell*. 2014;25(21):3280-3283. doi:10.1091/mbc.E14-06-1162; www.ncbi.nlm.nih.gov/pmc/articles/PMC4214775/. **Short scientific overview article, also giving some examples of early scientists founding a startup.**



- The Handbook for Market Research for Life Sciences Companies by Jean-Francois Denault; https://doi.org/10.1201/9781315198606. **A detailed introduction into market analysis, sometimes a bit complicated…**



- The Handbook of Marketing Strategy for Life Sciences Companies by Jean-Francois Denault; https://doi.org/10.4324/9781351235303. **Basically a continuation of the above book, focusing more on what to do *after* having identified your market**



- Where to play by Marc Gruber & Tal Sharon; ISBN-13: 978-1292178929. **How to find your best market opportunity – written by EPFL's Marc Gruber!**

BIO-490 students tasks for today/ this week

- **Watch the documentary on the Theranos** story (https://watchdocumentaries.com/the-inventor-out-for-blood-in-silicon-valley/) and answer the following questions:
    - What did Theranos offer to the customers?
    - How could the company get so big (10 billion US$ peak value) without having a functional product?
    - What are Elisabeth Holmes' strengths, what are her weaknesses?

theranos

- **Chose a biotech company which you want to present as a case study!**

Questions?