**From Spark to Ignition: Establishing a Plan for Entrepreneurial Success F2023**

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The name I go by: Aaron E-J (or just E-J)

# Intro

Why do you want to be an engineer? Is it because you have thousands of ideas for cool inventions, and you are jumping at the bit to learn how to implement them? Or maybe it is because you want to figure out how to find solutions to vexing problems. Whatever be the case, you probably need a plan of action for how to do this successfully. This will be a class on how to create this plan, and some practical tools you can use along the way.

We will spend the first few classes discussing strategies to make successful decisions and goals. We will also learn some practical resources that make college (and life) run a lot more smoothly so that you can focus on the things you want to do. Finally, we will get down to drafting this plan of action that you can use to realize some of the great ideas that are brewing in your mind, waiting to see the light of day. The hope is this will be something that will help you to chart your path through college – I designed it specifically to have all the things I wish I had known when I had started my college journey.

# Objectives and Goals

The hope of this class is to impart practical tools that you can use in your daily life and in your professional pursuits, be they entrepreneurial, academic or otherwise. The objective is that, by the end of the semester, you have another set of skills that you can use to judge the efficacy of an idea, and the beginning framework of how to implement this idea. It is also to bring up some likely challenges you may face in your entrepreneurial journey now, so that you can plan for their likely occurrence. Most of all, it is to make connections and friendships that would be difficult in a larger, more information overloading class. Finally, it would be awesome if some of the projects that some teams worked on, continued on to become actual businesses!

# Course Assessments/Grading:

Assignments can be found in the "Assignment" category on Canvas. They will be judged on a complete/incomplete basis. In the unlikely case that something submitted is marked "incomplete", recommendations on how it can be completed will be given. Most likely the reason something will be marked incomplete is because nothing was submitted. As some assignments will be peer reviewed by other class members, it is important that everyone get these assignments done on time so that other people have time to review them, with feedback. As someone who has an aversion to boiling an assessment down to a single letter, no assignment will be given letter grades. For the overall assessment of the entire semester, as long as you have done the assignments and participated in classroom discussion, you will get an A. If you do not attend class, or do not do the assignments, I will assume that something is amiss and try to reach out to you individually to see how I can help. If you decide that the class is not worth attending and working on assignments, please drop it so that you do not get charged. Hopefully, everyone will be interested in starting projects together and so this will not be an issue!

# Lesson plan summaries:

## Class 1 – Intro, getting to know each other and setting things up

This will be in-part an introduction to what this class is all about, and in-part a practical check in, get to know each other, and resource sharing to make sure everyone is set up for the rest of the semester (and to give resources that will be useful throughout your time at UMass). The assignment will be to finish reading the syllabus, if you haven't already, and getting set up with the software/accounts we will be using during the rest of the semester.  Submit a link in Canvas to your GitHub account so that I can add you to our team (hopefully most people will already be set up beforehand because I plan on sending introductory emails before class starts). Everyone should agree on what messaging system we want to use for this class (Microsoft Teams, Element, or something else). There are pluses and minuses to all of them.

If we have time, we will begin discussing idea generation, the topic of next week's class. The link to the shared google doc will be given and we will make sure that everyone has access. Everyone should try to bring your laptop, assuming you have one. If not, we can try to work around that.

## Class 2 – Assessing ideas: the forest, the trees, and the larger ecosystem of which both are a part

This class will be about strategies to quickly generate new business/research project ideas and assess their merit. The beginning few minutes will be an overview of some of these strategies and their applicability to certain situations. Some of the strategies include placing ourselves in novel situations, role playing, talking to people you don't normally talk to, getting exercise, or meditating. We will try out some of these methods and start creating a list of business/research ideas or other solutions to vexing problems. The goal at this stage is to try and come up with as many new ideas as possible, not to worry about their practicality. That will be what we do next, once we have gathered a good list of them, we will analyze the ideas for their efficacy and usefulness in society. Are there already solutions that fulfill a given challenge? How many people are likely to benefit if the idea is realized? Will it be solving an unmet need, fulfilling an insatiable desire, or fulfilling an obligation? Do we have enough will and internal interest to sustain the amount of effort required for implementing the idea? How can we work together to leverage our individual strengths and make each idea more achievable than if we were working alone?

The assignment will be for all the students to continue brainstorming some more ideas and how they fit in with those we identified in class. Then, select the idea you want to research and develop further and submit a brief description of some of the reasons you decided to choose it before the next class. Make sure everyone submits their own idea in Canvas, because everyone will be evaluating each other's selected ideas.  Everyone will be working on each other's projects in a collaborative way in the future as well.

## Class 3 – The basics of breaking goals into bite-sized chucks: creating a plan for how to go from idea to ideation

With some ideas identified, the next step is… to figure out what the next step is! Breaking ideas into actionable steps that lead to their realization is a broad and challenging topic. It is really something that will be refined throughout our time in school (and the rest of our lives). Learning the basic process by which reasonable goals can be made, and tasks to achieve these goals identified, is key to being productive, especially in engineering, where there are often many integrated components that need to be worked on concurrently.

The class will start with a personal example of how I am breaking my own graduate research into achievable tasks using a [GitHub](https://github.com/orgs/other-realm/projects/2/views/1) [Kanban](https://en.wikipedia.org/wiki/Kanban_(development)) board (Although there are some issues with GitHub, it is the de facto repository for most open source software projects at the moment). Everyone should now be part of the "[spark](https://github.com/other-realm/spark)" GitHub repository, assuming you submitted the first assignment. We will therefore spend some time forming groups around similar project ideas. If there is no one in your immediate class who has a similar idea that you really want to pursue, we can coordinate with the other class sessions, or you can work individually. Then we will spend the rest of the remaining time on a popular idea from the last class that no one chose for their project, and work on breaking this down into actionable steps. This week's assignment will be to start to analyze the ideas everyone identified as to what they were interested in further researching and break them into actionable tasks, using their own projects as Kanban GitHub projects. To make this happen, each group should coordinate with each other in setting up a project in the 'Projects' tab in the spark repository. I will try to make discussion channels using the chat application we decided on for each project so that you can coordinate things.

## Class 4 – Competition?

It is largely assumed that competition is a good thing – people talk about a "competitive economy", getting into a "competitive college", or getting a "competitive job" – but is competition really something to be encouraged? War is largely a result of competition; poverty is largely a result of losing to this competitive game, or else not being able to compete on equal terms. For every winner, there are usually many losers, and in a purely altruistic, rational society, competing is not an optimal way of advancing, working together is. Why then do we compete? What alternative social-economic models exist? When, if ever, does competition make logical sense? What are the differences between productive collaboration and illegal anticompetitive business collusion? Bringing the subject up as a discussion early in a student's time in college is important so that we can rationally assess the best method of doling out resources to achieve a goal. Hopefully it will open our eyes as to the implications that vying to take down an adversary instead of working for an equitable conclusion, have.

After briefly broaching the subject, the majority of the class will be spent debating the advantages and disadvantages of competition as opposed to collaboration, with several examples provided to stoke the discussion. Also discussed will be niche markets and finding the unmet need so that competition can be minimized.

When writing a business plan, an important component is a market analysis. The assignment will be to analyze the competitive forces in play in the ideas we are all working on, and to think of ways of collaborating that would lead to a net gain for all parties involved. Create a column in your GitHub project's Kanban, called 'Market' and brainstorm tasks related to marketing with your group. Are there any ways of turning competition into collaboration without risking allegations of collusion?

## Class 5 – Community resources!

This will be a practical overview of some of the area resources that people who live in the Pioneer Valley use, and some of the underutilized resources at UMass. It will also be an opportunity to engage in the wider community with some local volunteer opportunities. Four weeks into the semester, what challenges are you still facing? What do you need that you have not been able to find?

We will try to add to the list of resources I have compiled and will make available at the beginning of class, and if you grew up in the area, this would be a good opportunity for you to take center stage. The assignment will be to try and go to/utilize one resource, event, or opportunity related to the business idea in question that is not connected to UMass in any way. In a sentence or two, describe the resource you used and what came of its use.

## Class 6 – What happens when things go wrong?

What happens when things go wrong? What can we do to have resiliency? How can we help other people who have made mistakes without coming across as smug and further alienating the person? How can we find help without coming across as dumb? What happens if there are academic and/or financial consequences? How does society treat failure? What strategies exist to minimize mistakes?

It is essentially impossible to never make a mistake if you are working in any engineering or science field. And yet, there is so much stigma and shame in making errors that it can be isolating and demoralizing and prevent people from seeking help or cause them to hide it and carry on as if everything was working. If the mistake affected other people, it may not be just you that needs to heal. This class will be a discussion into the questions posed above. We will write down some of the strategies that people have identified, and get a gauge of whether any students are struggling with having failed at something and how they and the people around them reacted. This is a sensitive subject and we should all be aware that everyone is coming from different backgrounds and life events. No one will be pushed to share something they do not want to discuss publicly, and if you want to talk about something in private, feel free to either approach me or use the counseling services at UMass: <https://www.umass.edu/counseling/>. The assignment will be to consider possible risks that are likely to come up in the businesses we are starting and ways of mitigating their likelihood of occurring. Write down several possible problems you may encounter that may hinder the development of your idea and some possible ways of preventing them from cropping up.

## Class 7 – Universal design and assistive technology – it's for everyone!

Disability is just the inverse of ability – everyone has both. If the action or activity is sufficient to carry out the desired task, it is often treated as an ability. When things get more difficult or impossible than normal, it is more often treated as a disability. Engineering and technology make many more abilities possible (pretty much all humans have profound flight disabilities and yet we can fly faster than any bird ever could with access to the assistive technology of a plane). And yet many assistive technologies are not accessible to some disabled people or not useful for people who are "able bodied". Universal design is design that takes into account a range of abilities and tries to be helpful for everyone, not just those with or without a deficit or strength. A good example of this are smartphones – they are tremendous assets for everyone, but for people with certain disabilities, such as people who are blind, or deaf, or foreigners who do not know the language being spoken, they are even more of a necessity.

This class will detail what universal design is and how it can be deployed. In many fields, from websites to brick and mortar stores, accessibility is not just a good business decision; it is the law (the Americans with Disabilities Act, or [ADA](https://en.wikipedia.org/wiki/Americans_with_Disabilities_Act_of_1990), among others). It makes sense to factor it in from the beginning, rather than jury-rigging things to be compliant after the fact. There will then be a discussion on what resources at UMass employ good universal design practices, and which do not, and for those that do not, whether there are any ways to improve them. The assignment will be to analyze the accessibility of the business ideas you are working on, and to think about the audience you are looking to attract, the specificity of it, and write down some ways you can make it accessible to a larger/different audience.

## Class 8 – What if you didn't have any tools?

Although UMass students have access to a tremendous amount of tools and technologies, much of the rest of the world is not so privileged. This class will start out with a brief personal recounting of my time in the Peace Corps in rural Zambia, some of the challenges I needed to overcome, and some of those I wish I had but did not have time to. This will transition into a general discussion of ways to simplify your business ideas and how to cut material/assembly costs while keeping the same functionality. The assignment will be to write down at least one thing in your business idea that can be done more simply or in a quicker way.

## Class 9 – What if you have *too many* tools!?

Fortunately, UMass students have access to many, many resources and technologies, and from the internet you can find units of magnitude more. How we decide what resources to use to solve a problem can often be overwhelming! This class will be a workshop in assessing resources and choosing the ones that make the most sense. I will give some examples of situations where there are many things to consider and then everyone should discuss the topic and come up with one path to achieving the goal. The assignment will be to consider one decision your project will need to make to which there are many options and why you chose the path you did. Then everyone will assess someone else's decisions and make any suggestions as to whether you agree.

## Class 10 – Money, money, ain't it funny: where does mine go?

Most undergraduate first year students don't have tons of money, and starting a business can be very expensive, depending on what you want to do. This class will be a quick cash crash course on how to save money, both personally and for your future business. We will discuss tradeoffs, unforeseen expenses, and general budgeting. Then I will give a brief rundown of the very basics of business finance, profit/loss calculations, and often overlooked fees that crop up when you are selling things. Finally, we will break out into our groups and people will discuss how their venture will remain "in the black", and be able to grow over time. I will provide a basic template that you can modify to your liking. The assignment is to continue working on fleshing this out, in preparation for the next class – the business plan.

## Class 11 – One page business plans – congealing everything you have learned so far!

A business plan is an important planning tool, and is a good thing to have available should you need to pitch your idea on a moment's notice to a potential customer or person who may invest in your endeavor. A business plan is also a living thing – it should evolve as your idea evolves. We will be working on a one page business plan, or business "model canvas". I will share my business model canvas for my graduate research and discuss some of the things that go into it. The assignment will be for each group to start to create their own plan. We will therefore break out into our relevant groups and coordinate who is going to work on what part, and start to think of some things that can go into it. This will be part of a PowerPoint presentation on the last day.

## Class 12 – The elevator pitch!

First we will do a brief check-in on how the business plan is shaping up, then we will start discussing elevator pitches.

If you had 1 minute to sell your idea to someone, what would you say? This is going to be a prep session for the final class, "pitch day". We will roleplay that you have just bumped into the person who you have been trying to get in touch with, like, *forever,* about getting a research internship, or getting an investment, or landing that sweet contract deal. This is your one chance to impress them. For the next class, everyone will have 1 minute to make the case for their idea. To get ready for it, split up into your groups and decide which facet of the business each person will be pitching for. So, for example if you were developing the "Moon Power'' business idea, one person could talk about how it will provide a more reliable, steady source of energy than wind or solar, another person could talk about how it will be better for the planet than fossil fuel, and a third could detail how you figured out that it would be cheaper to build than most other forms of generation, if done at scale. The intended effect should be to wow your suitors with quick facts about your idea, without overwhelming them or it seeming like a low budget TV commercial. Be sure to practice your spiel enough that you can keep it close to a minute – there are a lot of people and only a little time!

## Class 13 – Light the fuse and get ready to blast off…🚀

The moment has arrived; it is time for the big pitch. Whether you are looking for money or to make a good first impression to a potential partnership, you should be excited! Everyone from a given group will get up in the front of the class and one by one start talking about your idea, while your one-page plan is shown in the background. Then the next group will come up and repeat. If we have time, I'll (or other students can) ask a few questions after everyone has presented. It would also be nice to briefly reflect on what everyone got out of the class.

It would be really cool if some of these ideas continued their development and actually bore fruit!

# Useful logistics and whatnot:

## Class Locations:

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| Access Class Roster | LMS | FYS 191ENG31-01 (85605) | FYS- From Spark to Ignition (Seminar) | 19 | Th 4:00PM –  4:50PM | **Hasbrouck Laboratory Room 228** | Sep 5, 2023- Dec 8, 2023 |
| Access Class Roster | LMS | FYS 191ENG31-02 (85606) | FYS- From Spark to Ignition (Seminar) | 19 | Th 2:30PM –  3:20PM | **Hasbrouck Laboratory Room 228** | Sep 5, 2023- Dec 8, 2023 |
| Access Class Roster | LMS | FYS 191ENG31-03 (85607) | FYS- From Spark to Ignition (Seminar) | 19 | Fr 2:30PM –  3:20PM | **Marston Hall**  **Room 15** | Sep 5, 2023- Dec 8, 2023 |

## Office Location/Hours:

Yet to be determined, probably somewhere in Bartlett Hall on Friday's, but will update when the schedule is finalized

## Contact Info:

Email: [aevansjanes@umass.edu](mailto:aevansjanes@umass.edu)

Phone [860-806-2778](tel:860-806-2778) (My personal cell, only call if it's an emergency, email is almost as fast)

## Required and Recommended Textbook/Other Material:

There are no required readings, other than this syllabus. A number of recommended readings/media will be shared throughout the semester, however.

## Prerequisite Courses, Knowledge, or Skills:

The only prerequisite is an inquisitive and open mind!

## Academic Honesty

To be honest, I think this shouldn't need to be included in a syllabus – you should be taking classes because you want to learn the material. You are likely paying the college, not the other way around. If you need to submit to subversive tactics in order to gain the system, something has gone wrong on both ends. If you are struggling with something, please, by all means let me know – I want to help work out a way that you can learn the things you need to know instead of doing busy work for no good reason. That said, UMass requires me to include the following:

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent ( <http://www.umass.edu/dean_students/codeofconduct/acadhonesty/> ).

## Accommodation Statement

As someone who has another hat working as an employee in disability services as an assessable learning specialist, and who also has a disability, I sure hope I can be accommodating! Let me know if you need anything, although in terms of test extensions or similar things that need preregistration, that probably won't be an issue in this class – there will not be any tests or quizzes and you have all the time you need on assignments (although hopefully they won't take that long). Here is what UMass has to say on the matter:

The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements. For further information, please visit Disability Services ( <https://www.umass.edu/disability/> )

## Title IX

In accordance with Title IX of the Education Amendments of 1972 that prohibits gender-based discrimination in educational settings that receive federal funds, the University of Massachusetts Amherst is committed to providing a safe learning environment for all students, free from all forms of discrimination, including sexual assault, sexual harassment, domestic violence, dating violence, stalking, and retaliation. This includes interactions in person or online through digital platforms and social media. Title IX also protects against discrimination on the basis of pregnancy, childbirth, false pregnancy, miscarriage, abortion, or related conditions, including recovery. There are resources here on campus to support you. A summary of the available Title IX resources (confidential and non-confidential) can be found at the following link: <https://www.umass.edu/titleix/resources>. You do not need to make a formal report to access them. If you need immediate support, you are not alone. Free and confidential support is available 24 hours a day / 7 days a week / 365 days a year at the SASA Hotline 413-545-0800.

For purposes of Title IX reporting, I am considered a “responsible employee” at UMass (<https://www.umass.edu/titleix/about>). **That means that if you tell me about a situation involving sexual assault, sexual harassment, domestic violence, dating violence, stalking, and retaliation, I must share that information with the Title IX Coordinator**. Making a report to the Title IX Coordinator is my legal obligation, meets the University's goal of providing members of our community with supportive resources they might need, and enables the University to obtain a more accurate picture of the extent of sexual violence in our community. **It will be completely up to you to determine if and how you want to work with the Title IX Coordinator's office. You will not be in trouble for reporting to me that you have experienced any of these situations, and the law prohibits retaliation against anyone who participates in a Title IX process.**

For the purposes of this class, if you choose to discuss your own personal experiences of sexual violence as part of a written assignment or a discussion, we do not consider that a report covered by Title IX.