

Aalto Global Impact

INTEGRATING ENTREPRENEURSHIP INTO
AGRICULTURE CURRICULA: A FOCUS ON FIT

PART II CURRICULUM AND COURSE DESIGN

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1 INTRODUCTION TO CONSTRUCTIVE ALIGNMENT

This manual is the companion of Part I, which focused on introducing entrepreneurship content and provided exercises for doing this. Part I also positions the purpose of this manual within the overall PBL-BioAfrica project. Building on part I, this manual – Part II – focuses on the bigger picture of how to actually integrate this content at the overall program level, and within individual courses. Because there is so much entrepreneurship content that can be taught, planning needs to happen to ensure decisions are aligned and support the ultimate goals we have for students.

To this end, this part of the manual is written under the framework of constructive alignment, which is perhaps the most widely used approach to curriculum and course development (Biggs & Tang, 2011). Constructive alignment is a pedagogical approach designed to build coherence between all the different elements of teaching. It is based on the principles of constructivism, where learners are assumed build their understanding of a subject, rather than passively taking in information. This construction process involves reflection, active participation, problem solving, and overall engagement with the learning process. Moreover, because this construction can be difficult, aligning all the different teaching considerations helps produce better learning outcomes. In short, constructive alignment helps avoid teaching being designed in an ad hoc manner.

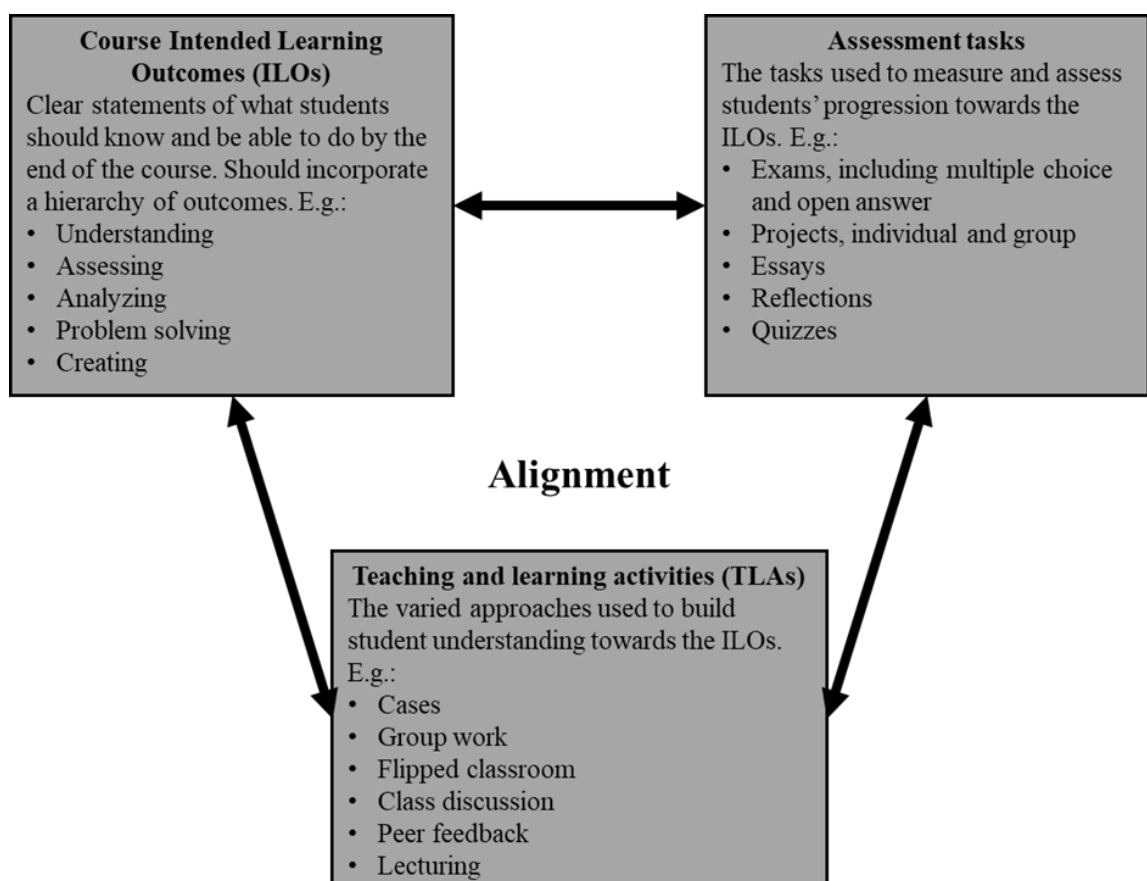
1.1 AT THE COURSE LEVEL

At the course level, there are three main considerations with constructive alignment: intended learning outcomes (ILOs), teaching and learning activities (TLAs), and assessment tasks. ILOs are the clear, specific, statements detailing what students should know, and be able to do by the end of the course; e.g., analyze the local agricultural context to identify viable crops, potential pests, and output markets. These outcomes are typically framed using action verbs, which exist on a hierarchy of learning outcomes; e.g., from simply knowing something to being able to critically analyze and solve problems. These ILOs should be measurable and/or observable in students' performance, as they form the foundation of the entire course. Clarity in ILOs helps the teacher design the course effectively, and for students to understand what is expected of them.

(TLAs) are designed to help students achieve the ILOs. These activities should be diverse and encourage active participation by students. In this way, they should extend beyond the traditional lecturing method to include approaches such as group work, discussion in class, case studies, hands-on projects, and flipped classroom approaches. This variety of activities encourages students to engage with the topic in different ways, thus allowing better construction of understanding. The overall goal is to create an engaging learning environment where students can actively participate, apply what they have learned, and work towards the ILOs.

Assessment tasks are the methods used to actually measure whether students have achieved the ILOs. Naturally, these tasks should reflect the ILOs, otherwise we are not measuring what we should. Assessment tasks should also vary to include exams, essays, group projects, industry projects, multiple-choice questions, and case-based assessments. Assessments should be both formative – which provide ongoing feedback – and summative – which evaluates final achievement. Effective design of assessments is critical to ensuring fairness and transparency.

Figure1:Constructivealignmentatthecourselevel



1.2 AT THE PROGRAM LEVEL

Constructive alignment at the program level follows the same principles as at the course level – i.e., aligning choices, and assuming students construct knowledge – but it looks different. We are aligning a different set of factors existing at the faculty, university, and overall external environment levels. We must consider these factors, as we do not design curricula in isolation. Instead, we are graduating students into a specific social, cultural, and economic context. We are looking to position students within that context in a specific way. We are also designing a program that can actually be taught by our current faculty – or faculty we can reasonably expect to hire. Moreover, our programs exist within a particular university context, which may demand we focus in a certain direction, or may constrain what we can teach.

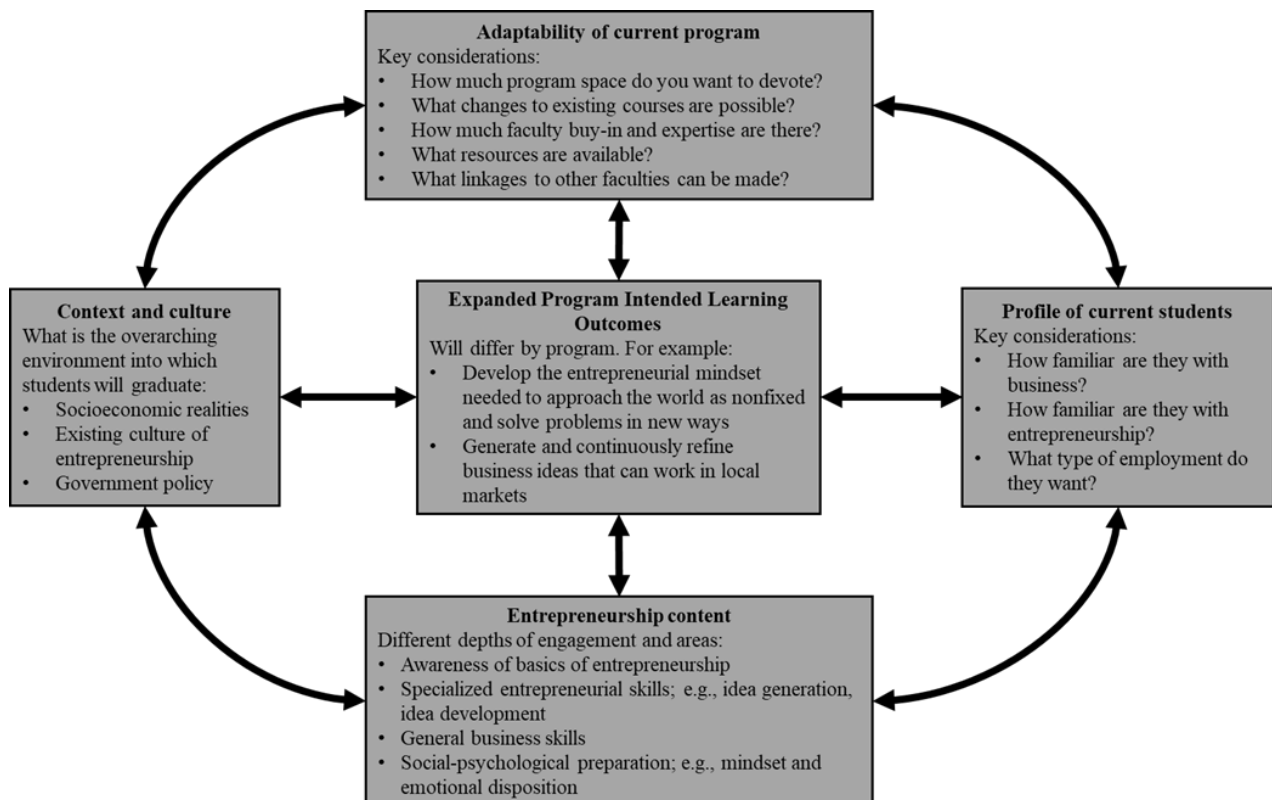
There are five critical areas to consider, keeping in mind that an existing program is being modified, not created de novo: the adaptability of the current program, surrounding context and culture, profile of current students, the entrepreneurship content we want to teach to students, and the modified program-level intended learning outcomes (ILOs). I will explain these considerations in depth in the next section, but two points are important for now.

First, effective alignment should be centered on the program ILOs. These are the written artifacts that serve as a compass to direct collective efforts. These program ILOs are necessarily broader than course level ones; e.g., Develop the entrepreneurial mindset needed to approach the world as non-linear and solve problems in new ways. Second, and flowing from this, program ILOs are what set course ILOs. Generally, to meet a program ILO, a specific area of learning must show up in multiple courses. It is for this reason that we generally need more than one course to effectively integrate entrepreneurship.

2 CONSTRUCTIVE ALIGNMENT AT THE PROGRAM LEVEL: KEY CONSIDERATIONS WHEN INTEGRATING ENTREPRENEURSHIP

This section details the key factors driving constructive alignment at the program level, as summarized in Figure 2. I highlight some of the trade-offs we need to consider. This provides a basis for section 3, where in-depth examples of alignment are given.

Figure 2: Overall model of constructive alignment at the program level, when modifying an existing program



2.1 CONTENT

Because entrepreneurship is such a vast phenomenon, we have to choose the depth at which we want to teach it to students. This is especially true given that we have limited curriculum space that can be diverted from our core program's subject matter towards entrepreneurship. In choosing what to teach, I suggest prioritizing topics – on which I briefly expand below, and which are detailed in considerable depth in Part I of this manual, including with exercises and examples – in the following order:

1. Awareness: Understanding the diversity of entrepreneurship
2. Social-psychological preparation: Building an entrepreneurial mindset
3. Specialized entrepreneurial skills
 - a. Evaluating and developing business ideas
 - b. Starting a business
 - c. Growing a business
4. Creating connections: Entrepreneurship within an ecosystem
5. General business skills

Each of these aspects of entrepreneurship builds on the previous one, and can be seen as steps along a continuum to deeper entrepreneurial skills (Liñán, 2004). Moreover, as we go progressively through this list, more curriculum time is needed to adequately cover a topic. For instance, getting students familiar with different approaches to entrepreneurship can be done in a few hours of class time 'borrowed' from other courses, while developing robust business skills takes multiple standalone courses. While it is of course useful to cover all these aspects, the first two are the most important, and can be done in a way that is minimally disruptive to current curricula. Furthermore, simply planting the seed of entrepreneurship in students' minds is extremely valuable, as we want them to at least consider this career option. If they are truly interested, they can figure out most of the rest.

2.1.1 Awareness: Understanding the diversity of entrepreneurship

Entrepreneurship is a broad phenomenon, and we want students to understand it as such. We want them to see many different ways of being an entrepreneur, so that they can hopefully see a way that works for themselves. Indeed, there is no single way to be an entrepreneur, and no single goal that an entrepreneur can have; there are many types of entrepreneurship. Starting a billion-dollar high-tech business is entrepreneurial just as is starting a small business selling electrical parts. Moreover, entrepreneurship need not be about making money, but can be about accomplishing sustainability goals.

Across these types though, there are some common characteristics. Notably, business ideas are at the core of entrepreneurship. Students need an idea before they can start a business. Moreover, entrepreneurship is a process wherein ideas are constantly created, evaluated, and either rejected or further developed. Across this entrepreneurship process – regardless of type – entrepreneurs must accept risk, manage uncertainty, mobilize resources, and form/leverage social relationships.

2.1.2 Social-psychological preparation: Building an entrepreneurial mindset

Understanding the diversity of entrepreneurship is good, but to have impact we need students to actually start that process. To this end, current research stresses that becoming an entrepreneur is situational and capability-based (Davidsson, 2015). Situations, such as being unemployed, one's social environment, having been approached by a prospective business partner, or wanting personal freedom all drive people to entrepreneurship (Nikiforou, Dencker, & Gruber, 2019). Capabilities include having the motivation to be an entrepreneur, being willing to take risks, having resilience, taking personal initiative, being adaptable, and looking for new ideas (Baum & Locke, 2004; Wales, Patel, Parida, & Kreiser, 2013; Williams & Gurtoo, 2012).

Flowing from this, the research is clear: we can build these capabilities, shorthand as an entrepreneurial mindset. This does not mean that anyone and everyone will become a startup billionaire, nor does it mean we can get any specific individual to be an entrepreneur. Instead, through proper educational efforts we can increase the likelihood that some students will become entrepreneurs. Here, efforts should focus on developing an entrepreneurial mindset, which has two major parts:

1. Seeing oneself as an entrepreneur; Developing entrepreneurial intentions
2. Generating business ideas

Seeing oneself as an entrepreneur is especially important when prevailing cultural attitudes run counter to entrepreneurship. Fortunately, much research has been done on this topic, and there are some simple ways to help students see themselves as entrepreneurs. The backbone for much of this research is the theory of planned behaviour (TPB). Here, a 'behaviour' is any concrete action undertaken in a particular context and time (Ajzen, 1991), such as exercising, cooking dinner, stopping smoking, or starting a business. As a theory, TPB helps us to understand that by helping students develop an internal locus of control (i.e., they can control outcomes), develop the motivation to be an entrepreneur, and develop entrepreneurial self-efficacy (i.e., they think they can be effective), we can increase the chances they will start a business.

The second part of developing an entrepreneurial mindset is searching for and coming up with business ideas. Indeed, business ideas are at the core of entrepreneurship (Davidsson, 2015; Eckhardt & Shane, 2010; Shane, 2003; Shane & Venkataraman, 2000); you cannot start a business if you do not first have an idea of what you want to do. As such, we want to give our students the tools to do this effectively. Integrating this content into your courses and curricula can be done non-disruptively. Small exercises that students see a few times per course can do a lot.

2.1.3 Specialized entrepreneurial skills

2.1.3.1 Evaluating and developing business ideas

Coming up with ideas is only the start of the entrepreneurship process. These ideas must now be evaluated for viability, and further developed. This is a tiered approach, where we want to quickly narrow down the list of ideas, and then put some effort into developing the most promising. Exercises can be integrated into existing courses, but likely require more time than in the previous section; e.g., 30-45 minutes.

The main point of evaluation and screening is to quickly narrow down the number of ideas with which we are dealing. Critically, we want students to do this narrowing with respect to their own skills, resources, and preferences; evaluation is about individual fit. An idea that is not suitable for one person may work well for another. Once they have conducted the initial screening, we want students to more rigorously develop the idea. Though people often think this means creating a business plan, doing so is very time consuming, and there are better tools to use at this stage, such as the business model canvas.

2.1.3.2 Starting a business

Ultimately, we want students to start a business. Doing this will build on the work they have previously done, but it will also involve some new steps. Notably, prior work – including idea generation, idea evaluation, and development – was largely ‘paper’ work. Students were not yet putting plans in action. When starting a business though, students must work in the real world. Some universities have incubators and accelerators to help students with these real world activities, but generally speaking this will be beyond the scope of most entrepreneurship integration.

2.1.3.3 Growing a business

You likely will not spend a large amount of time discussing growth with students, because this is not the most efficient use of limited curriculum time. It is more important to get students to see themselves as an entrepreneur and to start developing ideas. Nonetheless, a brief overview may be helpful for students, with this overview detailing different approaches to growth.

2.1.4 Creating connections: Entrepreneurship within an ecosystem

Moving beyond the entrepreneurship process, students also benefit from understanding entrepreneurship as embedded within a broader ecosystem; they are not acting alone. Leveraging this ecosystem to their advantage can help them succeed. First though, they must understand what this ecosystem is. To this end, there are six primary domains to the ecosystem: institutional support, finance, markets, policy, human capital, and culture (Biru, Gilbert, & Arenius, 2021).

Here, institutional support is especially important for students to understand. Governments and other actors aim to support entrepreneurship through training, financial support, access to markets, access to physical workspaces, and other mechanisms (Balachandra, 2019; Barrios, Recco, & Taborda, 2019; Brown & Hanlon, 2016; Campos et al., 2017; Chliova, Brinckmann, & Rosenbusch, 2015; Dutt et al., 2016; Gielnik, Frese, Bischof, Muhangi, & Omoo, 2016; Hudon, 2018; Matin, Hulme, & Rutherford, 2002; Morris, Carlos, Kistruck, Lount, & Thomas, 2023; Premand, Brodmann, Almeida, Grun, & Barouni, 2016). For the aspiring entrepreneur, accessing these support mechanisms can be essential to overcoming the inherent challenges of starting a new business. If possible, it is thus highly beneficial if you are able to link your program to these support mechanisms, such as by having them come to speak with students about their offerings.

2.1.5 General business skills

To help students be successful entrepreneurs, we might also help them develop their basic business skills in areas such as marketing, finance, people management, strategy, operations, and accounting. These skills are not about entrepreneurship per se, but because entrepreneurship is a business activity, these skills are useful. It is unlikely that your program has space to teach these skills in depth. Indeed, one can take an entire program on accounting, marketing, finance, or any other skill. As such, we likely want to rely on other academic offerings at our institutions. For instance, a business school likely has a well developed introductory course to accounting. In our own programs though, we can present a brief overview of these topics – perhaps using guest speakers from the business school faculty – to help students understand the basics.

2.2 MALLEABILITY OF CURRENT PROGRAM

The decision about which content to integrate into an entrepreneurship program does not happen in isolation. Indeed, the program is not being made de novo, but instead is being changed. As such, considerations related to the existing program matter, specifically: the available space, the acceptable course changes, faculty expertise and buy-in, as well as resources. Aspirations for the depth of content must align with the program realities.

2.2.1 Available teaching space

Integrating entrepreneurship into a program fundamentally means that entrepreneurship plays a supporting role, rather than a central one. Indeed, if being integrated into a forestry program, forestry is still the main topic. If being integrated into an agriculture program, agriculture is still the main topic. As such, there is often limited space that can be redirected to entrepreneurship. After all, students still need to be taught the core curriculum.

There is thus a balance to find. On the one hand, students need to learn their core technical subject with enough depth to graduate as experts. On the other hand, students need the tools to put this technical knowledge into action, and given the current unemployment issues for university graduates, this means entrepreneurship. This balance point will vary from program to program, and will depend on a host of other factors, including those mentioned below in terms of faculty preferences. Ministry regulations might also matter.

Whatever this balance point ends up being, this sets one of the most crucial considerations: how much space entrepreneurship gets. If it only gets a small amount of space, we can only integrate the very basics, while if more space is available, we can give students more depth.

2.2.2 Course changes and/or course integration

Interwoven to the question of space, there are considerations of changes you are willing to make to your courses. There are four types of changes in particular:

1. Keeping the same course, and same sessions in a course, but integrating entrepreneurship into some with small exercises
2. Keeping the same course, but swapping some sessions for entrepreneurship-specific sessions.
3. Using some of your program elective space to integrate an entrepreneurship course
4. Dropping a current course to make room for an entrepreneurship course

The first option is generally quite possible, as short 15-minute exercises are useful, and space can be found for them. The second option might be more challenging, but is also doable depending on the program structure. For instance, there are often 'open' courses with no fixed content that are used for co-op placements, for teaching special subjects, or for group projects. Some of this course space can be used.

The third option is also attractive if university regulations allow it. This is a good balance as it ensures students are getting much needed entrepreneurship training, but they also are not losing any technical expertise. The fourth option can be challenging, but creating an 'agri-entrepreneurship' or 'forestry entrepreneurship' course can make your program attractive to students.

Overall, choices here impact the content that can be integrated. For instance, if you wish to go deep into developing business ideas, this likely calls for a standalone course. The same can be said of starting a business, and for enhancing business skills.

2.2.3 Faculty expertise and buy-in

Iwu et al. (2021) found that the perceived competency of the faculty team teaching entrepreneurship is positively correlated with the development of students' entrepreneurial intentions. This intuitively makes sense, as students learn more from expert faculty, and they will also have more confidence in what they are being taught. This expertise also encompasses the actual pedagogical approaches being used; indeed, entrepreneurship content often deviates from lecturing styles, as it is more participative.

As such, either leveraging existing faculty expertise, or developing it, becomes critical. Here though, it is possible that a limited factor is run into. Most faculty will not immediately be comfortable teaching entrepreneurship, as they have no experience doing so. Usually though, some faculty will feel comfortable at least integrating exercises into their existing courses. These are the starting point, and they can be used to develop the professional competence of other faculty members in the future.

Moreover, some faculty may be averse to entrepreneurship. They may see this as deviating from the core purpose of the program. Given that program redevelopment is a political undertaking, it must be recognized that this aversion may limit the extent of integration. In cases of strong opposition, it may make sense to start with small activities in existing courses, show that this can be done without jeopardizing the core program content, and then make larger changes after there is more buy-in.

2.2.4 Resources

A lack of faculty expertise can, to an extent, be overcome by hiring an outside lecturer, or using a lecturer on cross-placement from another department. Of course, being able to do this – especially if the goal is to have multiple courses taught by an external – takes resources. Thus, how much budgetary slack exists is a key consideration. Resources also matter for existing faculty. Changing courses to integrate entrepreneurship takes time, and may require giving faculty partial course release. The bottom line: more resources mean more latitude.

2.2.5 Education regulations

An important constraint is the set of regulations governing a university. In some cases there is broad latitude to change the contents of programs and courses without getting any sort of official permission. In this case, we can integrate entrepreneurship in a relatively unencumbered way. In other situations though, there is an extensive and time consuming process to get changes passed by a university senate or by a ministry of education. Here, one option is to make smaller changes that exist within an existing course – such as by switching some sessions, or adding some exercises – as a way of immediately being able to have entrepreneurship content, and then making longer-term plans to have a new curriculum accepted.

2.3 CONTEXT AND CULTURE

Realities beyond the program also matter. Indeed, these form the background into which students will be graduating. Naturally, the way entrepreneurship is integrated into a program should align with these realities, namely: socioeconomic context, government policy, and the existing culture of entrepreneurship.

2.3.1 Cultural views of entrepreneurship

The values and norms of the community and those around it have a direct and significant effect on the willingness of graduates to undertake entrepreneurship (Hosseini, Sadeghi, Shari, & Azadi, 2023). In turn, this influences the type of content we might prioritize. If there is a strong culture of entrepreneurship, then we may not need to spend much time on social-psychological preparation, as entrepreneurial intentions may already be in place. This allows the program to direct space and time elsewhere.

However, there are often strong cultural reservations against entrepreneurship, especially amongst university graduates. For instance, many students may go to university hoping to secure a lucrative job in industry, and their families may expect this. In cases like this, there is a strong need to focus on social-psychological preparation. Indeed, entrepreneurial skills are not useful if students have no intentions of using them. Mindset is imperative, though is often overlooked (Krueger, 2007; Nabi, Lián, Fayolle, Krueger, & Walmsley, 2017).

2.3.2 Social, economic, and environmental context

The broader socioeconomic context around a program matters (Hang, Ang, Wong, & Subramanian, 2009). The overall economic picture heavily influences the entrepreneurial opportunities that are available after graduation; an expanding economy has more room for innovation, while a contracting economy has more need for self-employment focused entrepreneurship. These considerations influence the optimal approach to integrating entrepreneurship. In general, the content we choose to teach in a program should align with these realities. For instance, in case of a poor economy, we may have to do more work teaching students how to identify viable self-employment opportunities (such as running a small-scale farm themselves). This does not mean teaching a wholly different set of content *per se*, but it does mean that our examples can be thoughtful. We also need to make self-employment be seen as an acceptable course of action. We need to make students see this not as a failure, but as a triumph.

Similarly, we might choose to gear entrepreneurship content towards the types of environmental challenges students will face. Understanding how entrepreneurship can address issues like crop sustainability or water conservation could be critical. This might involve having students conducting thorough research into local conditions and needs.

2.3.3 Government policy

Government policy matters, and many countries take steps to promote entrepreneurship (Nicolaidis, 2011). This might mean that there are viable incubators and accelerators to which we can connect promising students, and that the culture is more amenable to entrepreneurship education (Hartsenko & Venesaar, 2017). In cases where there is limited supportive policy, we may have to do more things ourselves, or we might have to connect with NGOs. In general though, the less supportive the government policy, the less ambitious we can be with the content we choose to add.

2.4 PROFILE OF STUDENTS

Most forestry or agriculture student will have limited background in business and/or entrepreneurship. This means they need to start from the basics when integrating entrepreneurship; creating general awareness is critical. If, for some reason, students start with pre-existing knowledge, we can be more ambitious about how we change our current program, and how far we get into entrepreneurship. In essence, we do not need to spend as much time establishing awareness, and we can also introduce tools such as the BMC, and concepts like a value proposition, faster.

2.5 EXPANDED PROGRAM INTENDED LEARNING OUTCOMES (ILO)

Our choices about entrepreneurship integration are ultimately summarized in the new program intended learning objectives we add. It is critical for these to be aligned with our other major considerations. Indeed, setting highly ambitious learning outcomes when there is very little course space available sets students up for failure; they will not be able to reach this intended learning objective. Potential wording for ILOs are:

- Understand the entrepreneurial process and how it relates to agriculture/forestry
- Develop the entrepreneurial mindset needed to approach the world as non-linear and solve problems in new ways
- Generate and continuously refine business ideas that can work in local markets

Programs usually have 4-5 high-level ILOs. As such, we likely will only want to add one new program ILO. This might mean combining the above examples into something like this:

- Leverage an entrepreneurial mindset to generate and continuously refine business ideas that can work in local markets.



3 EXAMPLES OF PROGRAM LEVEL CHANGES

To help think through your own restructuring, below are a few examples. They are designed to cover an array of situations, and hopefully one can prove a useful starting point for your own program. There are five separate figures grouped together. One figure goes with each example.

3.1 EXAMPLE #1: LITTLE AVAILABLE ROOM

This first example includes what I see as the bare minimum amount of entrepreneurship content, and is shown in Figure 3. It is suitable when there is little available room to divert from the agriculture curricula to entrepreneurship, or when ministry or institutional constraints make it impossible to have a broader restructuring. The core content of awareness and social-psychological preparation can still be taught. In total, this restructuring uses 2-4 sessions from an existing source, as well as inserting 9-12 fifteen minute exercises. In other words, this involves at most 7 hours of class time across a degree. This seems worth it to instill a minimum of entrepreneurship.

3.1.1 Example#2: No faculty expertise

In the example shown in Figure 4, we might have more malleability in our current program, but lack the faculty expertise (or willingness) to do thorough integration into their own courses. In this case, and assuming the available resources exist, it makes sense to hire an external lecturer, or work out a cross-appointment from another faculty. This lecturer can create a standalone entrepreneurship course. This course could meaningfully cover several aspects of entrepreneurship, notably awareness, social-psychological preparation, and then the beginning of the development of entrepreneurship-specific skills such as idea evaluation and development. There would be no integration into other courses, just this single course. Though not ideal, this is a viable way of getting students to understand entrepreneurship. The only remaining decision is which course to replace. If possible, we might even take the credits from an elective, so as to keep the core technical curriculum intact.

3.2 EXAMPLE #3: INTEGRATED APPROACH

In some cases, we may have enough flexibility to both have a standalone course, and to integrate entrepreneurship into a variety of other courses. This is especially good if we can integrate an entrepreneurship component into the capstone research project, as shown in Figure 5. This approach is an ideal starting point for your programs, if you can make it work. This is essentially a combination of the first two examples, though with added integration into the capstone.

3.3 EXAMPLE #4: IN-DEPTH ENTREPRENEURSHIP, BUT LIMITED INTEGRATION

A fourth plausible approach is shown in Figure 6. This may happen where we have substantial space to allocate to entrepreneurship, but lack the faculty expertise/willingness to integrate into existing courses. In this case, creating a trio of entrepreneurship courses is a good idea. Naturally, these courses should build on each other, so as to deepen students' understanding.

3.4 EXAMPLE #5 GOING FULL-OUT

A final option is shown in Figure 7. This is likely not attainable immediately, as it does require substantial change. Nonetheless, this structure would be ideal if you wanted to market your program as 'agri-entrepreneurship.' In essence, this approach is a combination of examples #3 and #4.

Figure 3: Example approach for a program with little available space

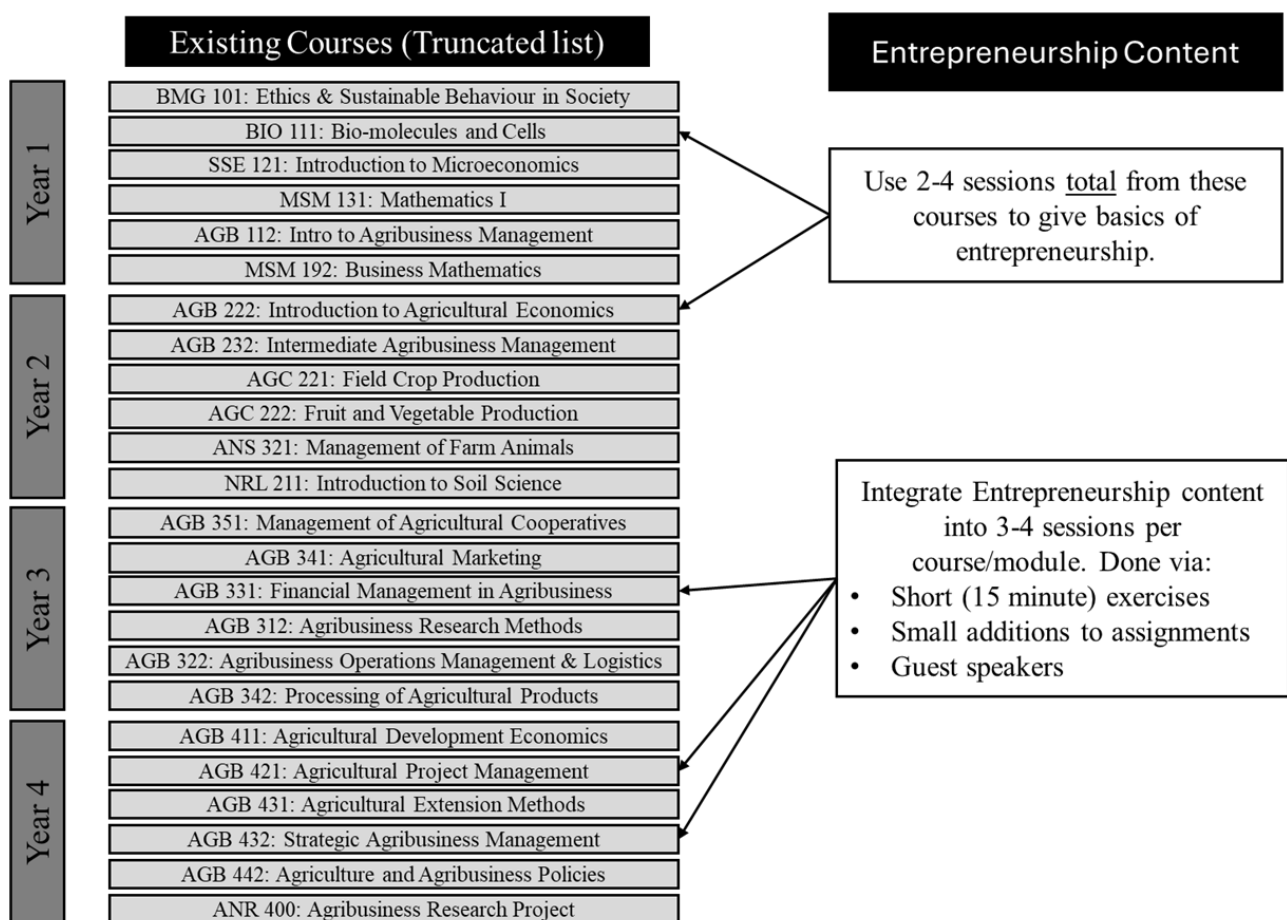


Figure 4: Example approach for a program lacking current faculty expertise

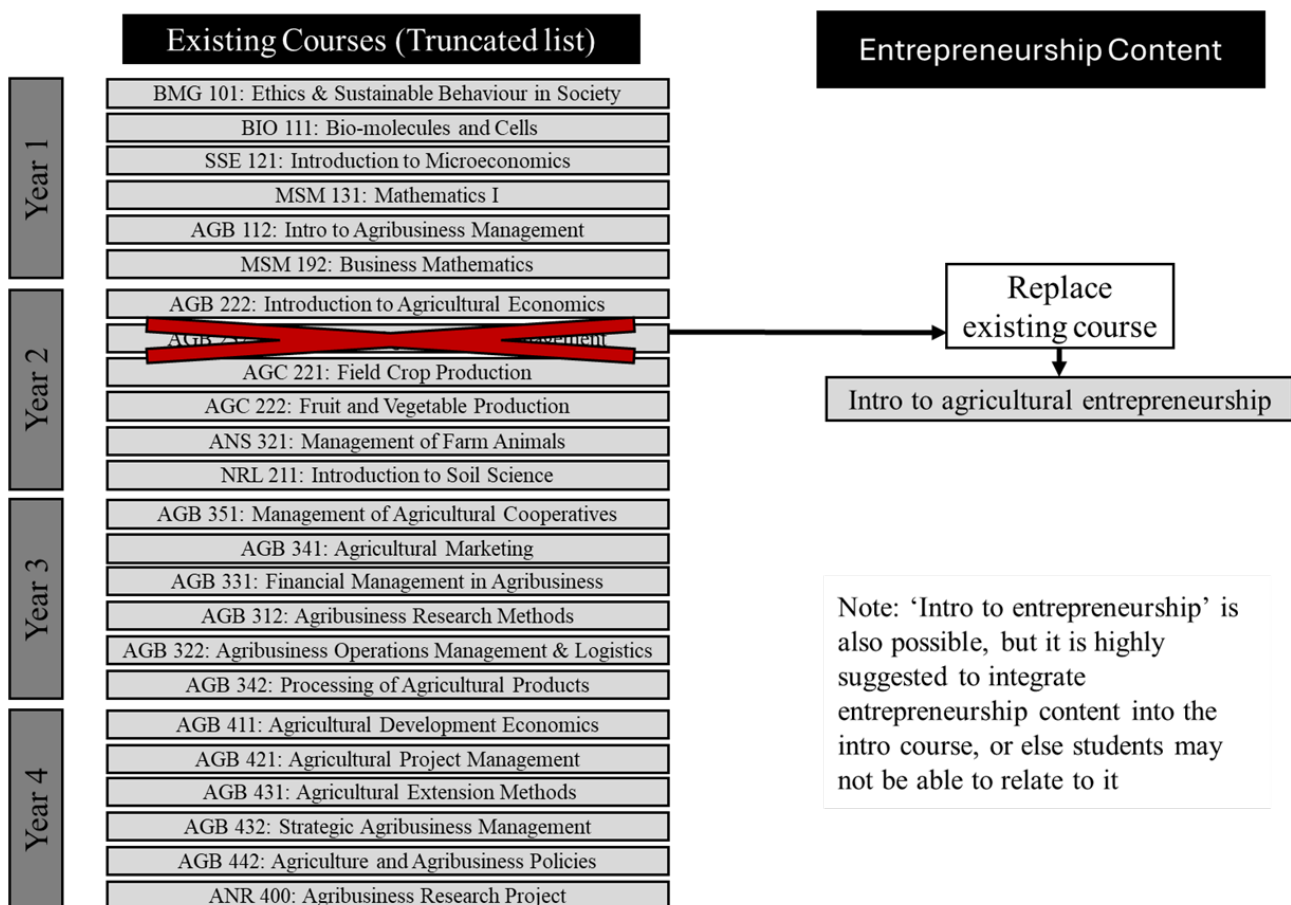


Figure 5: Example approach when there is a strong desire to integrate entrepreneurship across the curriculum

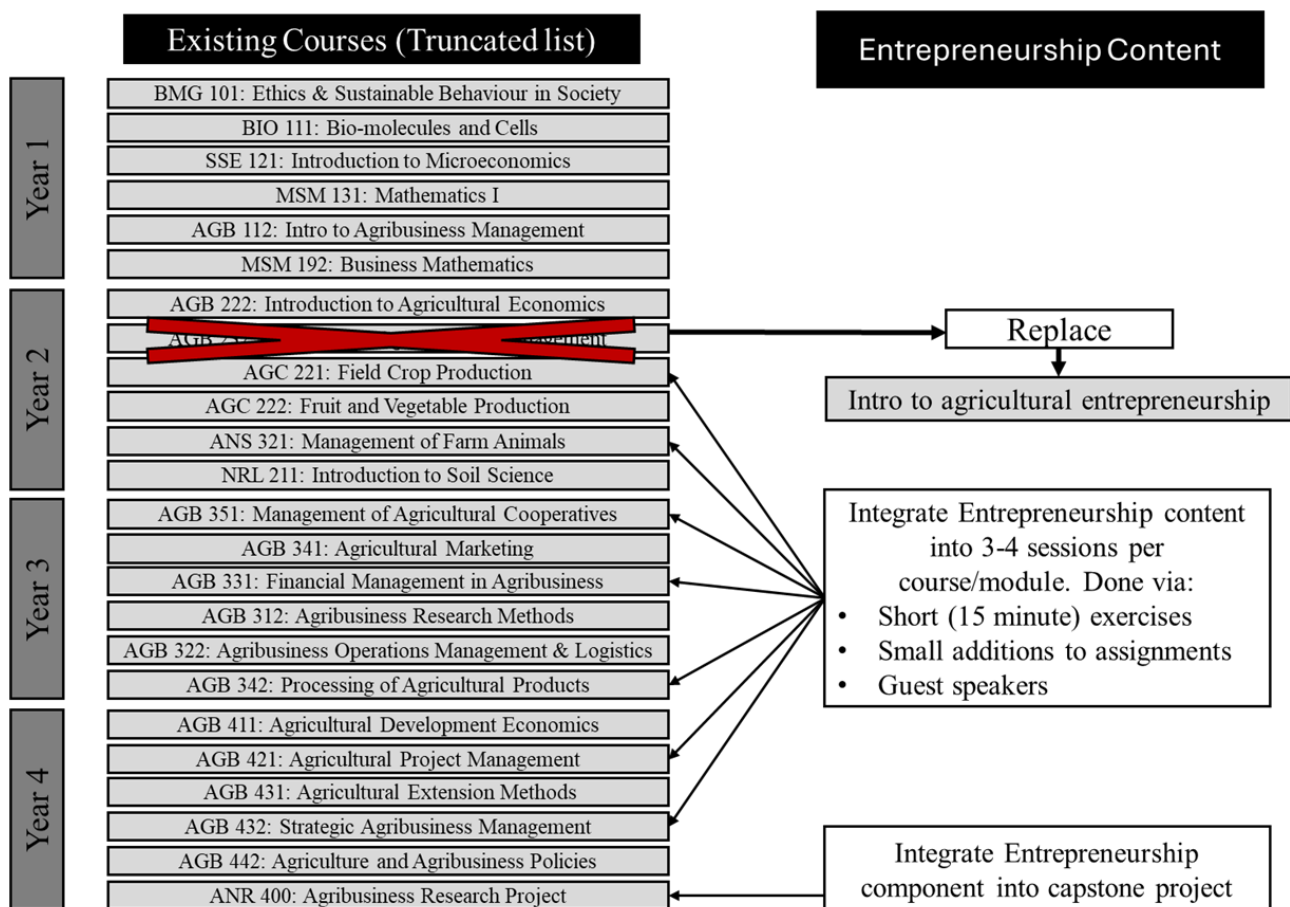


Figure 6: Example approach for achieving deep entrepreneurship content, but with limited integration into existing courses

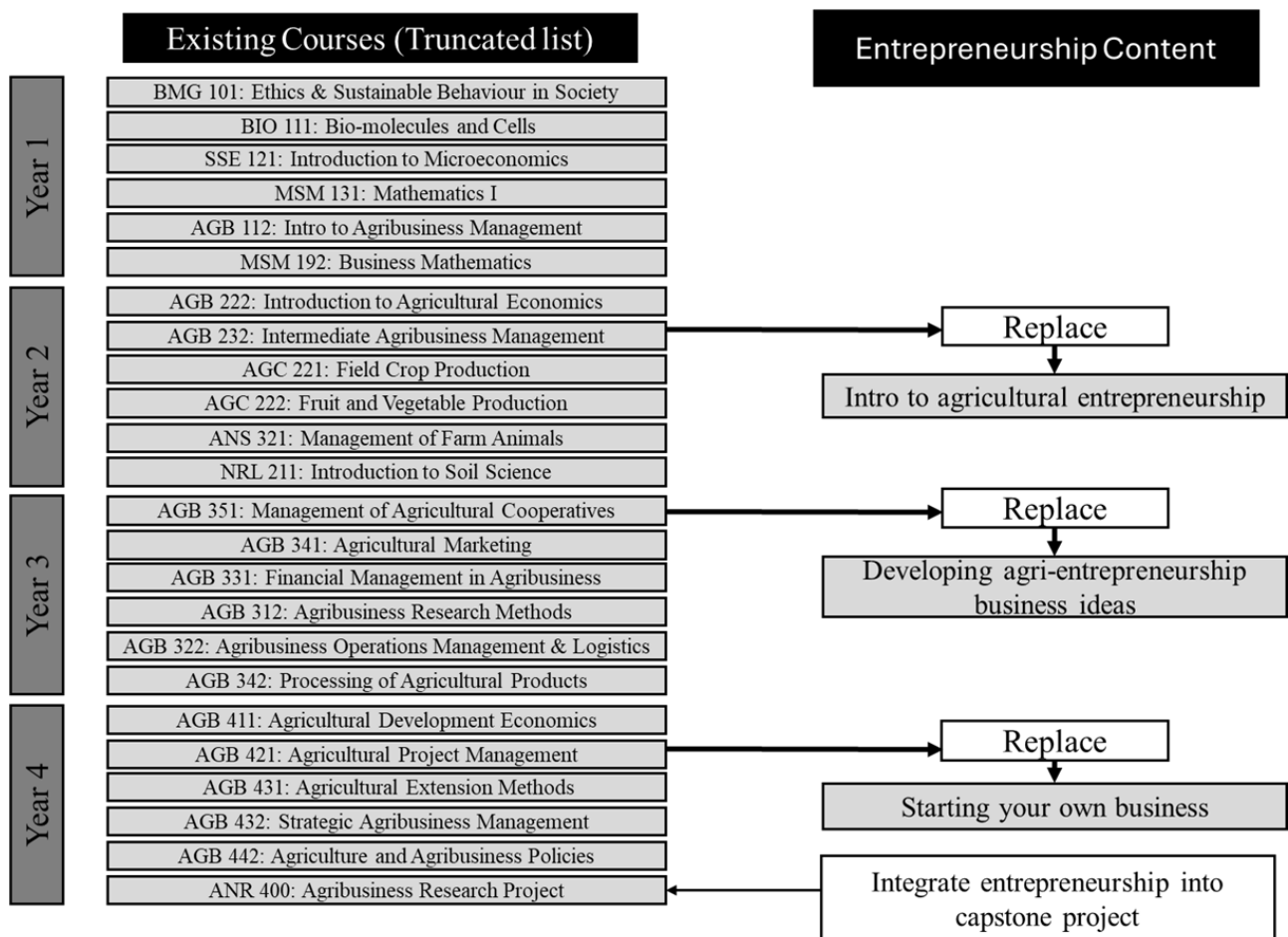
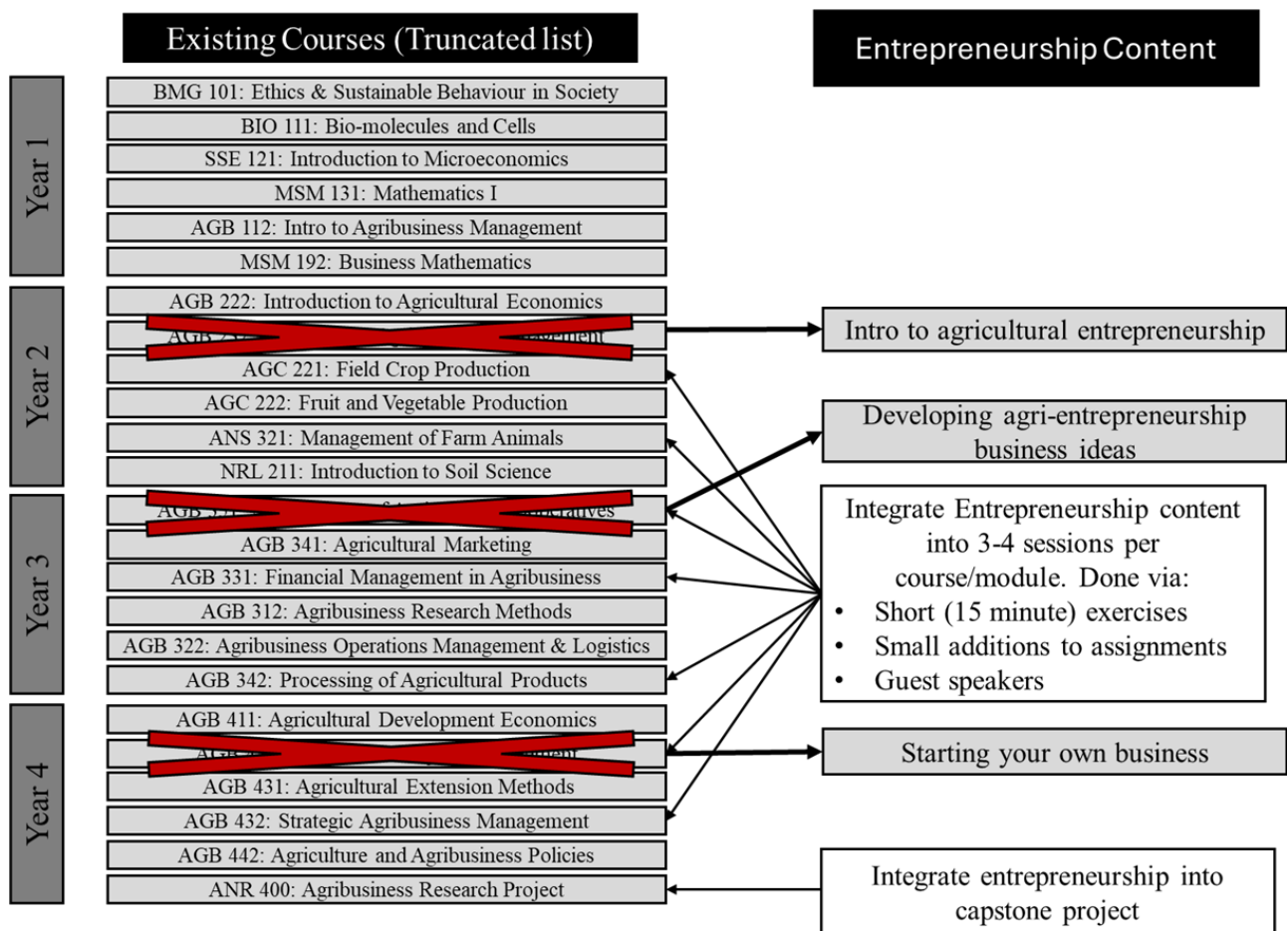


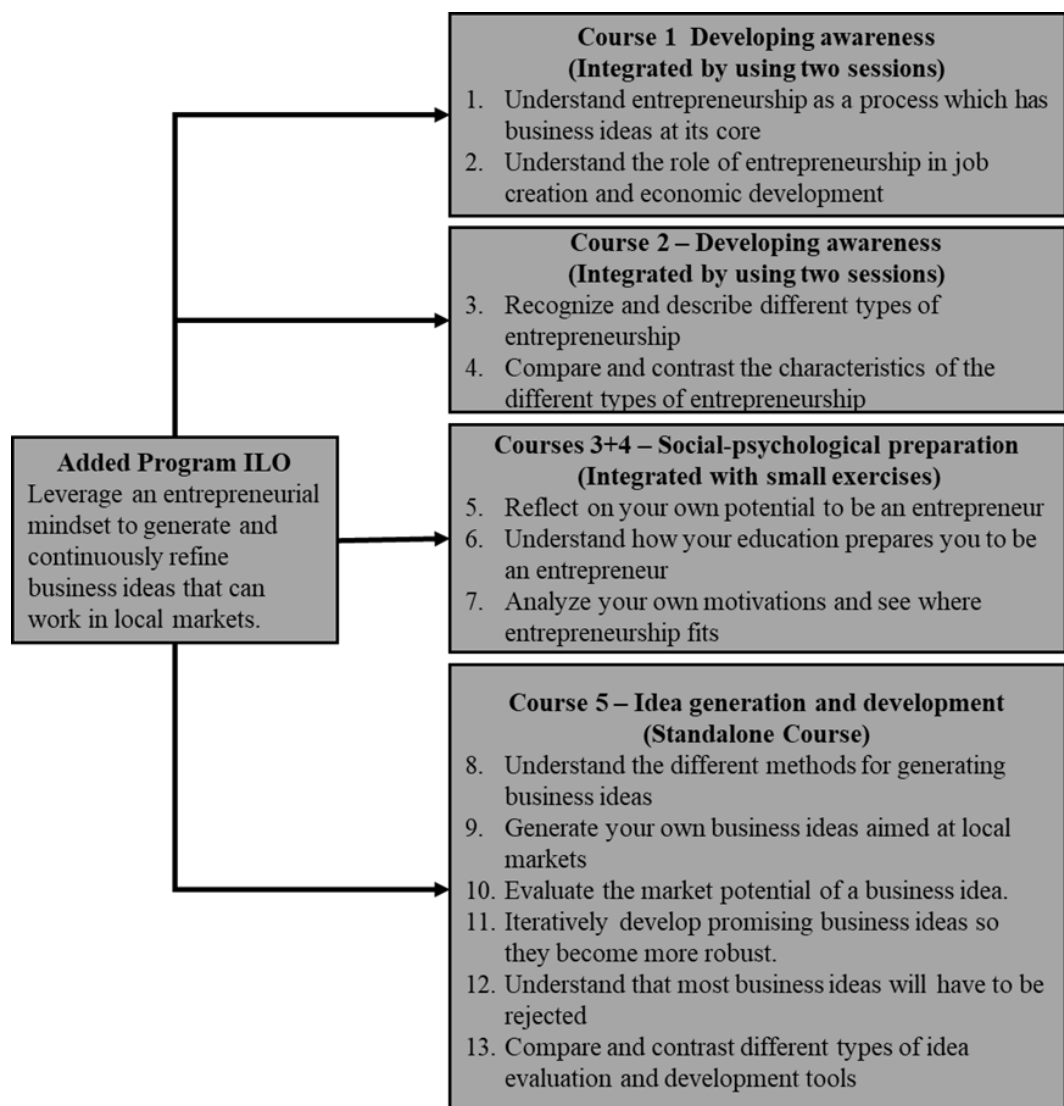
Figure7: Example approach for achieving deep entrepreneurship content, but with limited integration into existing courses



4 CONSTRUCTIVE ALIGNMENT AT THE COURSE LEVEL: KEY CONSIDERATIONS WHEN INTEGRATING ENTREPRENEURSHIP

This section narrows the focus from a whole program to an individual course within that program. As part of this, I take as a given that the overall program-level intended learning outcomes are set, and the courses into which entrepreneurship will be integrated have been selected.

Figure 8: Example of translation of program ILO to course ILOs



4.1 INTENDED LEARNING OUTCOMES

Updating our courses starts with mapping the added program ILO onto individual courses. In essence, we want to disaggregate the program ILO into sub-components, and assign these to courses. One example of doing this is shown in Figure 8. Here, we have a moderately ambitious integration approach, where we are looking to create awareness, have students undertake the social-psychological preparation, and preliminarily develop business ideas. To do this, we might integrate entrepreneurship into four existing courses, and then have one standalone entrepreneurship course. This gives us 13 separate course-level ILOs. (Note that courses 3 and 4 have the same ILOs, as we want to really ensure good social-psychological preparation.) These course-level ILOs are tangible enough that they can be effectively taught. I will use this hypothetical setup as a basis for explaining course-level alignment.

4.2 TEACHING AND LEARNING ACTIVITIES (TLAS)

There are many different TLAs we can use in teaching entrepreneurship: lectures, class discussions, case studies, guest speakers, etc. These TLAs are all different ways that students can construct understanding. Critically though, these TLAs are not equivalent in the type of cognitive processes they require; a case study develops higher order outcomes than lecturing (Anderson & Krathwohl, 2001; Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). Thus, from a constructive alignment standpoint, the key is to ensure that our chosen TLAs can effectively build towards our desired ILOs. Put another way, different ILOs require different TLAs. Below is an extended list of potential TLAs, with select TLAs expanded on below and their relationship to ILOs discussed:

- Lecturing
- Examples
- Class discussion
- Case studies
- Flipped classroom
- Peer teaching
- Guest speakers
- Small group exercises
- Simulations
- Student challenges
- Debates
- Role-playing
- Field trips
- Workshops
- Tutorials
- Demonstrations
- Videos
- Socratic questioning
- Journaling
- Guided reading

4.2.1 Lectures

Lectures are often a foundation of the university environment. They are an ideal way to deliver content to large groups. However, lectures are limited in the types of learning outcomes they can contribute to. They therefore have a specific learning niche they should fill. Namely, lectures are a one-way delivery mechanism where students passively take in content. They are useful for developing basic understandings of concepts. They can be augmented by including short summaries, examples, exercises, and even guest speakers but they are nonetheless not efficient at helping students develop analytical skills, or the ability to evaluate, create, and solve problems. For this, we need to rely on other TLAs.

Of the ILOs displayed in Figure 8, lectures would be most effective at developing ILOs #1-3, as well as 8 and 12. These are about basic awareness and understanding entrepreneurship as a phenomenon. Thus, to work towards these ILOs requires only the delivery of basic knowledge. These ILOs are:

1. Understand entrepreneurship as a process which has business ideas at its core
2. Understand the role of entrepreneurship in job creation and economic development
3. Recognize and describe different types of entrepreneurship
8. Understand the different methods for generating business ideas
12. Understand that most business ideas will have to be rejected

4.2.2 Class discussions and small group exercises

Class discussions and small group exercises are useful ways of building on the basic lecture. Both TLAs require students to start applying and analyzing information. This moves them from a passive learner to an active learner. There are many ways to structure class discussions or exercises, and they should thus be customized to the task at hand. Both work especially well with topics that demand comparison or reflection, require the consideration of different points of view, or are analytically ambiguous. The main difference is that small group exercises give each student more time to share their views, while full group discussions are useful for eliciting a diversity of views and having the discussion directed by the lecturer. From the ILOs displayed in Figure 8, class discussions and exercises would be especially helpful for #s 4-7 as well as 12:

4. Compare and contrast the characteristics of the different types of entrepreneurship
5. Reflect on your own potential to be an entrepreneur
6. Understand how your education prepares you to be an entrepreneur
7. Analyze your own motivations and see where entrepreneurship fits
13. Compare and contrast different types of idea evaluation and development tools

In addition, small group exercises are useful for ILOs 9-11. After doing exercises in small groups, it is possible that a full group discussion can be used as a supplement:

9. Generate your own business ideas aimed at local markets
10. Evaluate the market potential of a business idea.
11. Iteratively develop promising business ideas so they become more robust.

4.2.3 Mixed approach: Applying frameworks and tools

We might focus a class around the use of a framework or tool, such as the business model canvas, or the screening questions for idea evaluation. Here, there might be a mix of techniques. Lectures can be used to communicate the basics of the tool. Small group exercises can be used to let students apply these tools and develop analytical and creativity skills. Full class discussions can be used to clarify any confusion, as well as to share results and help students see a diversity of viewpoints or ideas.

4.2.4 Case studies

Case studies are widely used at many of the world's top universities. There is a reason for this. They are excellent at bringing real-world complexity into the classroom, and for putting students in the role of decision makers. They are also effective at integrating different ILOs, and for simultaneously working towards different levels of learning outcomes. For instance, students need to understand basic knowledge if they are to effectively analyze the decision-point in the case. As such, case studies are useful for almost all of the ILOs in Figure 8, except perhaps #5. With that said, case studies are especially effective for higher-order learning outcomes, such as those in ILOs 9-11.

4.2.5 Student challenges

Often used as part of a problem-based learning approach, student challenges are an excellent TLA to use in capstone courses. Students work in teams and focus on the real-world problems of an actual organization; they are trying to develop a plan to solve something real. By focusing on real-world problems, students must make decisions about what information to collect, how to analyze it, and the types of solutions to build. While sometimes daunting, this breadth also reflects the complexity they will face in their working lives, and thus is an excellent way of contributing to high-order learning outcomes.

An example would be working with an entrepreneur who is in the nascent stage of starting a business. They may have a short-list of business ideas in mind. Students could analyze these ideas, collect real-world data on them, and ultimately make a recommendation about which to pursue. Alternatively, students can also apply their entrepreneurial skill sets within existing organizations. For instance, an organization may have a problem with invasive species on their farm. Students can come up with different ideas on how to manage this. Overall, and like case studies, student challenges are especially effective for higher-order learning outcomes, such as those in ILOs 9-11.

4.3 ASSESSMENT TASKS

The last aspect to align at the course level are the assessment tasks.

Assessments are necessary in the university environment, as we need to give students a grade. Critically, these assessments should align with our ILOs; we should actually be assessing what we wanted students to learn. For instance, multiple-choice exams are good at testing basic knowledge, and thus might pair well with TLAs such as lecturing, and ILOs focused on 'understanding' or 'remembering.' Multiple-choice exams are not effective at assessing creativity or problem-solving. Case exams are much better at testing problem solving. A partial list of potential assessment tasks:

- Multiple-choice questions
- True/false questions
- Short answer questions
- Essay questions
- Oral presentations
- Case study analysis
- Reflective journals
- Group projects
- Written reports
- Simulations
- Debates
- Literature reviews
- Research papers
- Article critiques

Some of these assessment tasks overlap with our TLAs. For instance, debates are a viable TLA, but if we chose to grade them, then they are also an assessment. Moreover, there are some natural pairings between TLAs and assessment tasks. Student challenges often culminate in a written report and oral presentation.

As an example, consider ILO #9, "Evaluate the market potential of a business idea." As mentioned above, we might use small group exercises, case studies, and student challenges as our TLAs. Viable assessment tasks that mirror these TLAs would be group project, essay questions, written reports, and oral presentations. Critically though, we do not need to actually evaluate how 'good' the idea is, or how exact the evaluation is. Instead, we can assess the process students went through during the evaluation, and if their evaluation was logically sound.

5 CONTINUOUS DEVELOPMENT

5.1 PROGRAM – TOWARDS GREATER INTEGRATION

A key challenge when first integrating entrepreneurship is the lack of faculty expertise, coupled with potential resistance from that same faculty. Over time though, as faculty hopefully see the benefits of integrating entrepreneurship into their teaching, and as they gain more familiarity themselves, the program can be updated. This likely means that deeper integration will become possible, especially within existing courses. As such, setting a timetable for periodic review and updating is beneficial.

5.2 FACULTY EXPERTISE

Interwoven with this, there is the need to actively improve faculty competences. Beyond simply having more faculty willing to integrate entrepreneurship, Iwu et al. (2021) find that perceived competency of the lecturing team is positively correlated with students' entrepreneurial intentions at a South African university. Accordingly, periodic workshop, sitting in on others' courses, and external mentorship from partner universities are all beneficial. Instructors should be trained not only in the content areas but also in pedagogical approaches that foster interactive and experiential learning.

6 CONCLUSION

It is clear that entrepreneurship is beneficial to the employment prospects of students, to overall job creation, and to national competitiveness. Therefore, to not integrate entrepreneurship into our existing curricula would be to do a disservice to our students. Hopefully the contents of this manual – both parts I and II – can make it smoother to undertake this integration exercise. Please do contact me with any questions, as I am more than happy to offer any insights.

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