# What is Design Thinking?

Design thinking is one of many different ways of thinking. In your research, you may be engaged in some of these other ways of thinking, or already using designing thinking (perhaps without even knowing it).

## Different ways of thinking

* Engineering thinking: Solve your way forward.
* Business thinking: Optimize your way forward.
* Research thinking: Analyze your way forward.
* Design thinking: Build your way forward.

These styles of thinking are not exhaustive, nor mutually exclusive. Each represents a different philosophy for how to progress forward through challenges.

## Why use design thinking?

Design thinking specifically is a valuable approach for what are known as “wicked problems.” These are problems characterized by a large number of different factors that make it particularly complex, difficult, or seemingly insurmountable. Some characteristics of wicked problems include:

* Lack of a clear definition
* No simple “right or wrong” solutions
* Long or uncertain timeline
* No clear “starting point”
* Ambiguous “stopping points”
* Requires discipline and organization

Common examples of “wicked problems” include careers, education, and love. Your graduate degree will generally qualify as a wicked problem, because of the open-ended challenges of research and writing, as well as sometimes ambiguous solutions or evaluations of your progress.

## The design thinking process

Because design thinking is about building your way forward, it is a process. It consists of five basic steps:

**Empathize:** We need to begin with a deep understanding of the people or person (in this case us!) that we’re designing for, so that we can understand their needs, thoughts, emotions and motivations.

**Define:** From there we can move to defining what we’re trying to solve – empathizing, in the first stage helps us to define the ‘problem’ using the feelings and needs we discovered.

**Ideate:** Once we have a definition of what we want to accomplish, we start to conceptualize ways to solve the problems through brainstorming, inquiry, or other processes.

**Prototype:** From our ideas we start creating prototypes of our solutions – prototypes are great because they can be changed, altered, reevaluated, and recreated, allowing for ‘failure’, which is really good in this process – for example, a ‘failure’ in designing your degree and life could be finding out that a career path is not the right fit for you, which actually is beneficial is helping you continue to build your way forward

**Test:** From our prototypes we move into testing things out.

It’s important to know that this is not a linear process though, so we shouldn’t see testing as the “end of the line.” There are many reasons we might jump back to other points in the process:

* Learning about users [Empathize] through testing.
* New ideas [Ideate] sparked by working with prototypes or running tests.
* Tests revealing insights that redefine the nature or scope of the problem [Define].

### Design thinking mindsets

Wherever you are in the process, there are always a few mindsets that are really important for design thinking:

* **Radical collaboration**: This is especially important at the ideate stage. As design thinking is good for wicked problems, where often really new solutions are needed, talking to people with different mindsets can be very helpful!
* **Reframing**: Sometimes we need to reframe problems to see them in another light to create the best ideas and prototypes.
* **Curiosity**: Asking questions is so important. When we fail, we need to ask why; when we learn about our user/ourselves, we need to ask ‘how does that contribute to the problem definition?’; etc.
* **Bias towards action**: Creating prototypes and testing things is the only way we move forward, so we need that bias towards action and experimentation.
* **Mindfulness or process**: As all of these processes are non-linear and inter-related, we need to be mindful of where we are in the process and how this may relate to other areas. For example, if a prototype didn’t work, perhaps it was because we need some redefining.

# Using Design Thinking as a grad student

Graduate education offers more focus, increased independence, and (usually) more choices for how to design your degree. By recognizing this, you can take charge of your education by becoming a co-designer of your degree, instead of being a ‘good student’.

Making the best use of design thinking as a grad student involves two general steps:

* Familiarize yourself with degree requirements, to design your degree to achieve these within your timeframes
* Identify where flexibility exists to design your own degree experience

## Identifying Academic Milestones

Academic milestones, are non-course degree requirements such as specific assessments or activities that you must complete as part of the requirements for your program. They are not always term-driven, do not typically follow the same structure as a course (e.g. regular meet times, requiring credit weights), and may or may not be graded (but if they are, the grade does not calculate in the student’s average on the transcript). Some examples of academic milestones are:

* Academic Integrity Module
* Academic Integrity workshop/milestone
* Required training (e.g. WHMIS)
* Internship
* Establishing a research question
* Selection of Advisory Committee
* Research proposal
* Data collection / research
* Comprehensive exams
* Thesis
* Oral thesis defence

Academic milestones/degree requirements for each program are listed in the Graduate Studies Academic Calendar. You can find your program using the [Graduate program search](https://uwaterloo.ca/graduate-studies-academic-calendar/graduate-program-search). Select “Degree requirements” to scroll down to your specific degree requirements. You can also use Quest to check on your progress and completed milestones by following the instructions for [viewing your milestones](https://uwaterloo.ca/quest/help/students/how-do-i/milestones).

## Academic milestone activity

Instructions:

* Identify your academic milestones
* Download the activity document; you will need Microsoft PowerPoint in order to open and view it correctly.
* Pull the pre-created academic milestones (yellow ‘sticky notes’) into the correct year within the Odyssey plan on slide 2 (stretch the milestones across multiple years/terms as needed, or create copies).
* If needed, write in your own academic milestones on the “create your own” yellow ‘sticky notes’ and pull them into the correct year within the Odyssey plan on slide 2. Create additional ‘sticky notes’ as needed.
* Once completed copy these ‘sticky notes’ onto the same place in your Odyssey plans on slide 3 and slide 4.

If you have any questions about the timelines for your degree requirements after looking at the Academic Calendar, you can always contact your Graduate Coordinator. For PhD candidates, you can find information on the timeline to your defence, as well as backwards planning tools, on our [preparing for your thesis defence](https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/current-students/thesis/preparing-your-phd-thesis-defence) page.

### Activity reflection

* Were there any milestones you weren’t aware of? Any surprises?
* What questions, about timelines or milestones might you now have for your supervisor and/or program coordinator?
* Does seeing the requirements in a timeline spark any thoughts? Questions?

# Designing your Degree

When planning out your degree program, we recommend creating what are called Odyssey plans. We have prepared two versions of this tool for you to use, depending on your program level:

Master’s Odyssey planning tool

PhD Odyssey planning tool

## What is an Odyssey plan?

Odyssey plans help us map out possible future paths that we can take.They are both decision-making tools and planning tools.

An Odyssey plan involves establishing a blank timeline of your future, at whatever scale you choose (in this case, the full length of your degree program). You then populate this timeline with tasks or goals that you need to complete, creating a calendar of important milestones or actions. So far, so typical. Most plans start like that to some degree.

What makes Odyssey plans different is that you don’t just do this once. Instead you creating three (or more) “alternate futures,” different versions of the same timeline, with a different list or order of tasks and goals. These could be very similar, with only some small changes. Or they could be wildly different, reflecting entirely divergent paths you might want to take.

Once you have drafted these “alternate futures,” the Odyssey planning process asks you to take time to reflect on your thoughts and feelings about each of them. How realistic is a plan? How confident are you that you can follow it? How does it make you feel? Asking these and similar questions helps us evaluate our options, deciding on the best path forward using a multitude of considerations.

### Why use an Odyssey plan?

There are several benefits to the Odyssey tool over more typical planning approaches.

* By considering multiple viable alternatives, we avoid tunnel vision, prevent ourselves from fixating on the myth of a single “correct” path that we have to take. This helps us be open to opportunities, while also creating structure and intentionality.
* By reflecting on each “alternate future” we integrate the necessary emotional dimensions into our planning. All of us have emotional needs, and lives outside of the specific professional or academic goals we are working towards. The Odyssey tool asks us to consider these needs as added elements that determine the ultimate viability or our plans.

## Creating your 3 alternate futures

### Step 1: Create 3 titles for your alternate futures

Working on slides 2-4 of the planning, the first step is writing in a title on each side for each alternative future. You will see a spot that says “enter title here” where you can put a different title on each slide.

Each should have a very distinct end goal, method, or approach.
For example:

* One academic career/further education future
* One industry/public sector future
* One wild idea

### Step 2: Add ‘plans’ or ‘goals’ into each of your Odyssey plans

Step two is to add plans or goals into each of your Odyssey plans. You can use the categories pre-created “sticky notes” provided in the template, or create your own as needed. Remember, you are designing your own experience.

Do this for all three “alternate futures”, making sure to add goals and activities that make sense with the title. Some may be the same across all three, but they shouldn’t be identical. Consider adding at least one personal and one professional development item in each year of each Odyssey plan that match with the theme/title of that future. There are some examples on the color-coded “sticky notes,” and lots of “other” options for you to add your own ideas. Remember, while some plans/goals may be the same throughout your three plans, they should not look all the same.

### Step 3: Evaluate each alternate future

Finally, step three is to evaluate each plan using the gauges at the bottom for each of the four areas.

Evaluate each alternate future using the dashboard:

* Resources: Do you have the objective resources (time, money, skills, contacts) to pull this off?
* I like it: How do you feel about this plan?
* Confidence: Are you full of confidence that you can pull this off?
* Coherence: Does that plan make sense with itself? And, is it consistent with who you are?

Once you’ve done this, reflect on how you feel about the results.

* Consider sharing your plan with someone else and getting their thoughts on it as well.
* If you aren’t sure about some aspects (e.g. you can’t decide how confident you are that you can pull it off) ask yourself if you need more information, and where you can find the information you need.
* For plans where resources or confidence are low, determine if there ways you can work to increase your confidence or resources.
* Try to center yourself in the planning process. A plan is only good if it is one you have the time and resources to complete while maintaining your physical and mental well-being.

# What’s next? Using your design thinking mindsets

**Radical Collaboration:** Who can you share your Odyssey plans with to allow for radical collaboration and different ideas?

**Mindfulness of Process:** Continue reflecting on and adding to your Odyssey plans, especially as you engage in radical collaboration!

**Bias Towards Action:** Prototype experiences from your Odyssey plans! Does one plan include teaching? Seek out opportunities to try this out on a smaller scale.

**Curiosity:** Look for opportunities and ask questions! What might you want to ask your coordinator about? Your supervisor?

**Reframing:** Do you see challenges in your plans? How can you reframe these?

## Resources for graduate students

**Coherence and consistency:** The Centre for Career Action offers many [workshops](https://uwaterloo.ca/career-action/workshops-and-events) on exploring career pathways, career interests and your personality as it relates to careers

**Radical collaboration:** Get involved with other students outside your lab or department! Engage in more [cross campus workshops](https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/current-students/gradventure/gradventure-events-listing), get involved with the [Graduate Student Association](https://gsauw.ca/), or engage with an interdisciplinary [research institute](https://uwaterloo.ca/research/research-excellence/senate-approved-centres-and-institutes) to start.

**Prototyping:** Find and create opportunities to test out (prototype) parts of your plans. This could be anything from [informational interviews](https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/blog/post/exploring-your-options-primer-informational-interviews) to internships or volunteering in an area of interest.