

[Morse code beeps]

[Whoosh]

[Helicopter rotor]

Hello, everyone.

My name is Nick Rober.

I'm a fellow with the AeroAstro Comm Lab,
and today we're going to be talking about
PhD thesis proposals.

So, to get started,
let's do an opening activity,
which, is just checking
your department's requirements.
This is important because each department
is pretty different on
what they might require for a PhD thesis
proposal, and it's important to know
what you might be having to do
going into this lesson today.

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So the lesson goals
for today are to first identify
what is the purpose,
the goal,
and the audience of a PhD thesis proposal.
We'll learn how to plan and structure
your thesis proposal
to make it as strong as possible.
And then we'll also leave with a concrete
roadmap, for your own proposal,
that you can use to plan
the rest of your your PhD thesis research.
So what is a PhD thesis proposal?

A PhD thesis proposal is just a checkpoint
in the process towards
your dissertation, that often consists
of both a written and oral component,
and is usually presented to your PhD
thesis committee.

The purpose of the PhD thesis proposal
is to propose a clear plan for your future
and also demonstrate that you are ready
for independent research.

Depending on your program,
the thesis proposal
may come at different points
throughout your your grad school career.
Sometimes it's it's towards the beginning
and sometimes it's towards the end.
Earlier proposals usually communicate

a reasonable plan
to graduate to your department/committee.
And then later proposals
are effectively a check,
to make sure that you're ready to defend.
We'll primarily focus on the earlier
thesis proposals through this lesson
because it includes
more of a planning component.
So to go about actually making your
thesis
proposal, the first step is actually
planning the thesis proposal.
So this has a lot of overlap
with our other lesson
on formulating a research topic,
but we'll go through some,
some elements of that that are specific
to the thesis proposal itself.
So the thesis proposal,
you should keep in mind,
this is something that will actually
be very helpful for you as you go
through the PhD.
It's useful to organize your thoughts
and what you first want to identify is
what are the gaps
in your field of interest
that you need to address?
And then the answer to that
is maybe a more difficult piece.
But what are you going to do
to, actually address those gaps?
Both of these should be elements,
in your thesis proposal.
You need to be very mindful of the scope.
So plans
should be extensive enough for the PhD,
but not so much that you can't
accomplish them in around five years time.
So tips to kind of gauge
the scope of this.
You can look at other PhD theses
throughout your or from your department
or your lab And you also you want to
you want to be very specific,
when kind of describing what the gap is
and what your contributions will be.
You also want to be specific
when you're discussing your contributions.

The more specific you are, the easier it will be to gauge kind of how long each of those things will take. You should also discuss a lot with your advisor and your committee. These are, you know, resources that can help you. Your advisor is a good resource to help judge the merit of your proposal. And if you have the opportunity to meet with your committee before your proposal, you can kind of do a mock proposal that tells them the ideas that you want to discuss, and then they can give you feedback. Another part of building your proposal is designing a roadmap. So a roadmap is simply a kind of timeline of your next contributions, where you'll submit those contributions. And it helps convince your committee that you have a plan and a path towards graduating on time. It can also be used as a guide to help keep you on pace. So as you go through, you know, your future semesters, you can check and see like where are you with respect to your your original plan. Things to include in the roadmap are when you will accomplish each of your milestones, as well as kind of where you plan to submit each of your milestones in terms of publications. An example is shown here. This is just something that you know, you can kind of based off of, but basically you have each of your contributions where you're submitting them and when you're going to be working on them. So next we launch into an activity. So go and find the "Build a Roadmap" file and work on that for the next five or so minutes and we'll jump back into the lesson.

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So once you've gone through
and planned out
most of your thesis proposal,
it's time to actually start writing.
The written proposal
is the actual document that you submit,
typically to your committee,
as well as maybe the department,
that outlines
the plan for your dissertation.
So the audience for
this is usually fairly small.
Often it's just your committee.
Maybe there's a department rep that
you're submitting this to as well, but,
you're primarily writing this document
just to be read by,
you know, 3 or 4 people.
So you can really kind of tailor
the writing specifically
for their background and make sure that
the motivation and everything is,
is, scoped to
what each of them are familiar with.
The purpose of the written proposal
is actually just to propose
a clear research problem.
So this is something you've already
kind of
thought
about through the planning process.
You also want to demonstrate
a strong understanding of your field.
So you show that you have knowledge
of the literature and all the different
components of the problem
that you're trying to address.
You also want to define the scope
of your research and support that scope
with how feasible it will be based on
the amount of work that you need to do.
And then finally,
you need to set a plan, going forward,
that gives you a timeline towards towards
graduating on time.
Written proposal components.
So typically there's an introduction.
This is what will give you the motivation
and identify the research gap

that you're going to be addressing.
Related work and background
show your committee that you have,
knowledge of the field
and have mastered the material
and it also contextualizes your work.
The problem statement
is where you actually identify
specific problems for your research
that you're going to be addressing.
You may have sub-problems as well.
So smaller bits that you need to solve
to solve the bigger problem.
And then you'll talk about your proposed
methods and approach.
And this can be tricky because, you know,
you don't necessarily have these done,
but they should give you
they should give some sort of idea of
what you plan to do
and how you might approach the problems.
And then depending on where you are
in your, your research,
you may have some results already,
which you can include.
Otherwise, you should give
kind of the expected results.
What do you expect to see from your,
from your contributions?
And how will those address
the research gap?
And then finally, you can give,
the timeline and the roadmap
that we've just developed to give a plan
towards your final defense.
So regarding tips for actually writing
your proposal,
the first thing to do is double check
your department requirements,
make sure that you know exactly what it is
you need to have done and when.
This includes length expectations.
So what, how much material
are you required to submit?
And then also what material specifically
are you, required to submit?
And also,
when writing, you want to be specific.
So specifically, what problem statements
are you trying to solve?

The more specific the better.
And then specific proposed
methods will help your audience
so your committee evaluate the methods,
and then also provide ideas
that might kind of give you different
directions to, to pursue.
Another thing to keep in mind is that
some amount of uncertainty is is expected.
These are hard problems to solve,
which is why they're worth doing as a PhD.
So your committee will understand that
and it's important to keep that in mind
and not shy away from, you know,
not knowing the answer to everything.
Ultimately, they'll be able to help you
with finding some solutions
and giving you ideas, so this is
an opportunity to get their feedback.
So once you're done writing, it's
time for the actual proposal defense.
And the proposal defense
is just an extended meeting
where you will present your thesis,
and then your committee
will typically ask you questions,
and there may be some time
for deliberation afterwards.
Again, in this case,
the audience is, your committee members,
but it may also include
some department representatives
and even an independent evaluator.
But again, you're
you're kind of mainly presenting
to your committee
and trying to get their approval.
The purpose of the defense
is to demonstrate that
you're comfortable with the material
and give you an opportunity
for more interaction with your committee
and kind of get ideas
from them as well.
So the specific layout of your proposal
defense is something
that's very dependent on your department,
so make sure you're
you're familiar with your department's
requirements before beginning.

But often
there are a few different components.
So first
obviously there's the presentation.
But before and after that there may be
some sort of evaluation period
where your committee
will discuss in private, the merits
of your written component.
There will also be a Q&A session,
which is very important
because your committee
will have questions about your ideas.
But this is also,
it's important to keep in mind
that this is a good opportunity to get
feedback from your committee and hear what
their ideas might be, with respect
to your specific research gap.
And then finally, there's typically
some sort of private deliberation period
after the entire defense is over
where your committee will decide
whether or not you pass your defense.
So with that, let's jump into
the final activity, which is responding
to committee's questions.
So go and find the "Committee Questions"
file and work on that
for the next five or so minutes.
[Alien spaceship beeps]
With that, you should now be able
to identify the purpose, goals
and audience of your PhD thesis proposal.
You should be able to plan and structure
your proposal
to make an effective argument
for your readiness as a PhD student
and you should be able to create a roadmap
for your research
leading up to your dissertation.
Thank you.
[Morse code beeps]