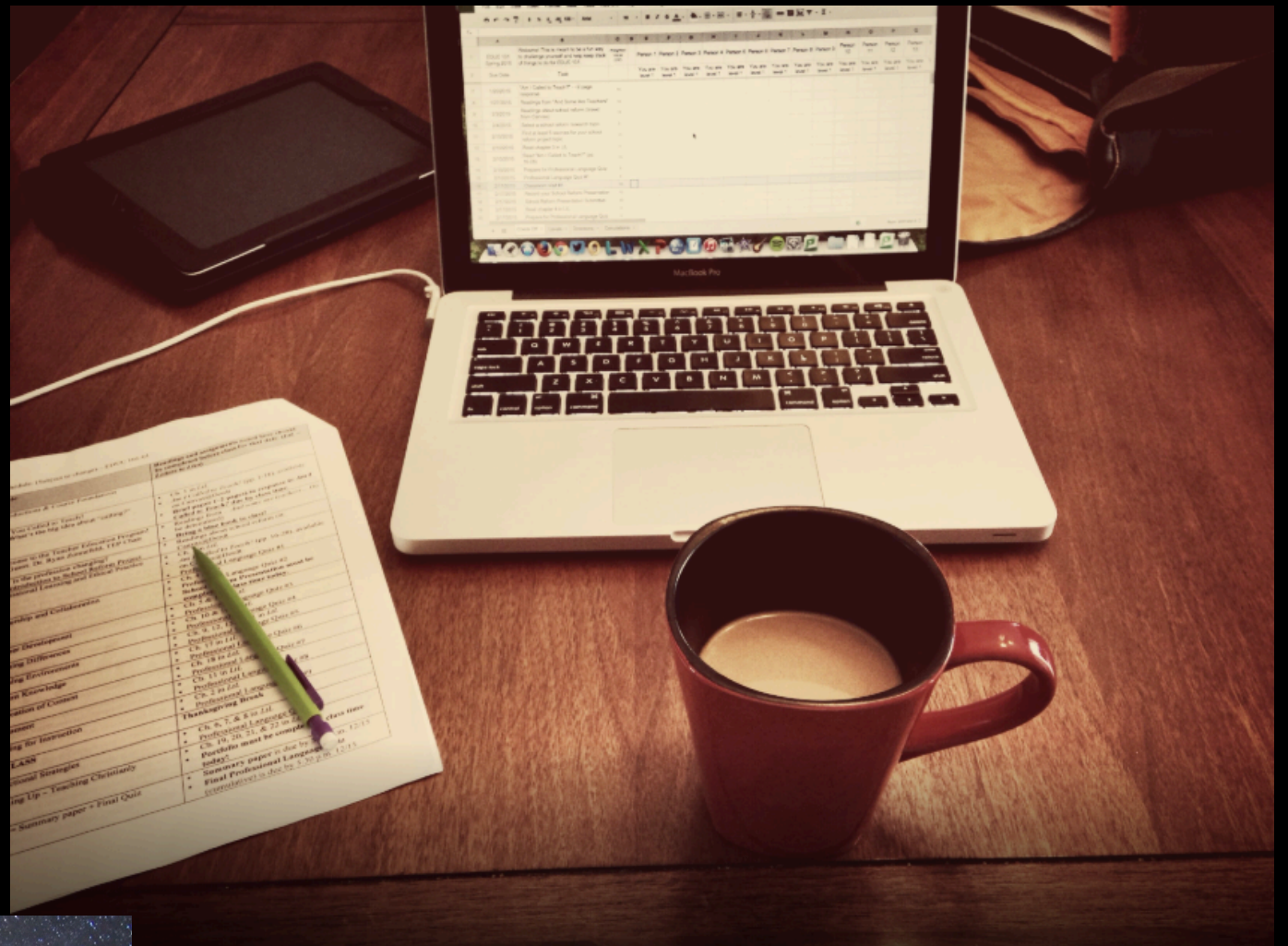


This Assignment Is In 2 Parts

1. The Proposal

You will come up with a **science program** for which to propose JCMT observations (JCMT proposals are much the same in format as many other telescopes).

Any instrument, any feasible science



2. Constructing the MSBs

You will then use the JCMTOT software to **construct usable observing scripts** for the telescope based on your program

The Proposal

An example can be found here:

https://www.eaobservatory.org/~s.mairs/ASTR351/assignments/Example_JCMT_Proposal_Mairs.pdf

Abstract

Scientific Justification:

1-3 pages describing the background on the science and why the Time Allocation Committee should select this work. It should clearly state exactly what instrument(s) you want to use and the total time request. Describe the specific scientific question(s) you would like to answer. Include well-labeled figures!

Include a Source List and Time Calculations

Technical Justification:

0.5 - 1 page justifying the required sensitivity you need to make a robust detection. This estimate can be derived using archival data from other telescopes, figures from papers you looked up as part of your research, or estimates from simulations that have been performed (Figures welcome!)

Include References

Getting Started: Questions to Ponder

What are some interesting **astronomical questions that inspire you?**
Think Big!

Do a little research on the data that exists and think about how the JCMT could be used to follow up: **Continuum? Spectral? Both?**

Is (are) the source(s) **visible from Hawai'i?**

What **time of year** are your sources in the sky?

Is there a **temporal component** to your observations? (i.e. do you want to decide when to trigger observations? *eg. flares, comets, gamma ray bursts...*)

Time Calculations

Don't worry - we have online calculators!

SCUBA-2

<https://proposals.eaobservatory.org/jcmt/calculator/scuba2/time>

Heterodyne

<https://proposals.eaobservatory.org/jcmt/calculator/heterodyne/time>

You will need to justify the sensitivity you need to achieve your scientific goal

I.e.: What is the background noise necessary to make a robust detection? Background noise is highly dependent on weather!

Things to Keep in Mind

Requests for time are **limited to a maximum of 200 hours**

But usually proposals that require ~<50 hours are more successful

If your request is large - can you reduce the sample size? The required sensitivity? The size of the mapped area? The number of molecules?

Projects that can be performed in poor weather (Band 5) are likely to get time!

Generally, a Time Allocation Committee has ~15 minutes to address your proposal, so make sure the thesis statement of your science stands out somehow - TAC members can't perform detailed follow-up on references

Be creative, but not vague - I.e., a statement like "This data will shed light on our understanding of galaxy evolution" isn't helpful, because every other proposal might contain the exact same sentence.

Part 2: The JCMTOT

Launching the JCMTOT from UH:

```
% javaws http://ftp.eao.hawaii.edu/ot/jac-ot.jnlp
```

Start here for a PDF presentation of tips and Tricks

https://www.eaobservatory.org//JCMT/observing-tool-tutorials/jcmt_ot_tips.pdf

There are also 2 tutorials (Basic and Advanced):

https://www.eaobservatory.org//JCMT/observing-tool-tutorials/jcmt_ot_basics.html

https://www.eaobservatory.org//JCMT/observing-tool-tutorials/jcmt_ot_tricks.html

Here is the full documentation with a convenient table of contents:

<https://www.eaobservatory.org//JCMT/observing-tool/>

More information on Heterodyne and SCUBA-2 Observing Modes:

<https://www.eaobservatory.org/jcmt/instrumentation/heterodyne/observing-modes/>

<https://www.eaobservatory.org/jcmt/instrumentation/continuum/scuba-2/observing-modes/>

What You Will Need To Submit for Grading

1. A complete proposal do perform some observations.

Ensure you have all the necessary components:

Abstract

Scientific Justification

Target List

Time Calculations

Technical Justification

References

2. A complete program that will run in the JCMTOT.

When you construct your program, **ensure you use the “Validate” button on each of your MSBs and on the whole science program**, itself. The system will let you know if there are any errors. When you save your work, a “.xml” file will be produced.

Submit the .xml file for grading.