

Instructions for CfA Telescope Proposals

(revised for 2016A, 9/23/15)

While the CfA OIR Time Allocation Committee does place considerable value on keeping the proposal process light-weight, the TAC is finding that its deliberations are often being affected by common imperfections and uncertainties in the proposals, as well as some substantial variations of assumptions between proposals. Therefore we are issuing this new set of instructions.

Even if you are an experienced observer/proposer, please read these instructions, as there are some substantive changes, largely in the Addendum. For example: the Proposed Work section including figures is limited to three pages; bibliographies must include titles; non-CfA collaborations must be explained; student theses described.

The TAC reserves the right to downgrade or even summarily reject proposals that do not comply with these instructions.

As a preamble, the TAC seeks to rank proposals foremost according to their likelihood of yielding strong science relative to the telescope time invested. This of course is a combination of many factors and inevitably hinges on the judgement of the committee. The quality of the science opportunities of the proposed observations is the most important factor in the decision. However, these instructions request additional information intended to help the TAC judge the effectiveness of past allocations, the opportunities for student training, and the ability of the proposal team to conduct the observations and produce high quality results once the data have been acquired. We note that these instructions are more specific than in the past so that proposers can more uniformly understand what is expected.

Before applying for time, please check the instrument status and the range of dates available for each telescope. At FLWO and the MMT, we allocate time for four-month trimesters, starting in January, April, and September (with August typically closed for long-term engineering during the Arizona monsoon period). At Magellan, we allocate time for six-month semesters, starting mid-January and mid-July.

The proposal continues to have three major parts. The first is the cover page, which is generated by the online web page.

The second part, referred to here as the Proposed Work, should have two sections, describing the Science Justification and the Experimental Design. The maximum length is 3 pages (total), of which at most 2 pages can be text, the rest being figures and/or tables. Large proposals requesting 6 or more nights on the MMT or Magellan or 14 or more nights on the FLWO telescopes may use an extra page for the Proposed Work, i.e., a maximum of 4 pages with at most 3 pages of text.

The third part, referred to here as the Addendum, contains all other materials, most notably (where relevant) a summary of progress on the continuing project, a summary of previous use of OIR facilities, a description of any proposed collaboration, a table of targets, a bibliography, and a thesis description. We expect that the Addendum should total no more than 2 pages and preferably less, but the TAC will waive this limit in more complicated cases.

The Proposed Work and Addendum should be in 12 point font, single-spaced, with 1" margins. We prefer a one-column format.

Within these sections, please adhere to the following instructions:

1) The PI of the proposal must be an eligible CfA proposer for the bulk of the trimester/semester when the proposed observing would occur. Eligibility requires a) that the CfA be one's primary affiliation and b) that one is resident at a CfA facility. CfA staff on leave or sabbatical may also apply for time. Sabbatical visitors at the CfA for the bulk of the trimester/semester are welcome to apply.

For people moving to or from the CfA, note that one becomes eligible to apply before one arrives, so long as one will be in residence for the bulk of the observing period. E.g., if arriving in September 2016, one may apply to the 2016C MMT/FLWO trimester or 2016B Magellan semester. Conversely, if one is leaving for a new job in August, one is not eligible for these periods even though the proposal deadline is before one departs.

Rationale: CfA facilities are typically oversubscribed and are intended to support the science programs of CfA researchers.

2) The PI and all co-authors must have their affiliations listed. Be careful that the co-author list is not truncated by the limited space on cover page! If needed, continue the co-author list in the Addendum space.

Proposers moving to or from the CfA should list the affiliation appropriate to the observing season being proposed for. E.g., if one is moving in August, then a C trimester proposal should use the new affiliation.

Rationale: It is impossible for the TAC to know everyone at the CfA, and we don't want to try to guess affiliations. Collaborations with non-CfA scientists are an important strength of many proposals, but we want this to be explicit.

3) If the proposal involves non-CfA co-authors, then the Addendum must include a Description of Collaboration. This can be brief, but it should describe in broad terms what parts of the project will be done at the CfA and what will be done elsewhere. It is not necessary to itemize the role of each person. This section should also list external telescope resources being used or requested. We expect that one paragraph will suffice in most cases.

Rationale: Multi-institution collaborations are common and of course offer many important opportunities. However, the TAC wants to be assured that the CfA PI and co-authors will have a substantial role in the project and to understand what work will be carried out at the CfA and what will be done elsewhere. It is often unclear what resources are being brought from outside sources.

4) Proposals marked as being part of a student thesis or research exam must carry a paragraph in the Addendum summarizing of the thesis/project plan and explaining how the proposed observations will serve the larger plan. The paragraph should state the names of the student and their research advisor(s), give an expected graduation or defense date, and identify whether the student is a Harvard student, a SAO pre-doctoral fellow, or has some other affiliation. If a proposal is serving more than one student's work, include one paragraph per student. We do not require a signature from the advisor.

We note that while the TAC does endeavor to support theses of CfA-based students, approval of a thesis plan by a thesis committee does not ensure approval of a telescope proposal by the TAC.

Rationale: The TAC is not otherwise briefed on thesis plans, and proposals are often unclear as to how the proposed time fits in to the fuller scope of the thesis. We note that just because a student is involved doesn't make the proposal part of a thesis. For example, observations proposed for the last semester of a graduate career may not be appropriate for the thesis (but the finishing student certainly is eligible to apply for time!).

5) CfA telescopes routinely schedule projects for partial nights or queue observing. Therefore, the time requested should be based on the total number of hours, divided by a suitable number of hours per night. That is, if you need 3 half nights of time, request 1.5 nights, not 3 nights. You should scale the number of hours in a night to values typical of the season and lunation.

Hectospec, Hectechelle, and soon MMIRS and Binospec are typically operated in a queue, and nearly all observations with the FLWO 1.2 and 1.5 meter telescopes are in a queue. This gives substantial flexibility in applying for time: we can schedule monitoring projects and can programs with limited RA ranges of targets that would otherwise not fill nights. Therefore, you should apply for the time you need; do not pad out with inefficient observations to fill nights. Hectospec and Hectechelle proposers should assume 25 minutes of overhead per fiber setup, with no more than 3 hours on target before another setup is needed.

Proposals should calculate the time required for the project assuming clear weather and typical seeing conditions. The TAC intends to include some unassigned time in the observing queues so as to provide a hedge against weather losses. The TAC will similarly consider augmenting time requests for classical observing, but the correlations in the weather patterns make this difficult in most cases.

Rationale: Queues and partial nights provide a great deal of flexibility in observing but have led to some confusion in cover pages. For a queue covering weeks of time, weather impact is unavoidable. We prefer to give some allowance so that projects have a better chance of finishing, while not being so pessimistic that the queue would go empty. Classical nights unfortunately are subject to more variance.

6) The position and fluxes of targets should be included, if known. A table is a concise way to give this information for single targets; to be clear, this table is part of the Addendum and does not count toward the page limit of the Proposed Work. Truncating long lists is acceptable, but please be clear about the range of positions and fluxes. For multi-object work, describe the sky position of the pointing(s) and the range of fluxes; one does not need to include a list of the individual objects. The proposal does not need to give exact positions, and the proposers are not expected to have run the fiber or slit configuration software before proposing.

The position and flux ranges must also be entered on the cover page.

Rationale: This information is important for judging the observational viability of the program and for the construction of the telescope schedule, both for classical and queue modes. Rough sky positions are fine; this is for scheduling.

7) Many proposals are continuing. These proposals must use the Addendum to give a clear Progress Report. The report should include the number of nights already used in the project and indicate the state of the analysis and list publications and the key results derived from the earlier observations. When possible, the report should indicate the future scope of the project and an estimate of the number of future nights to be requested. This estimate should also be included on the cover page.

Rationale: The TAC typically sees proposals for continuing projects call after call. We want to understand the progress on the work: What has been learned from the data collected thus far? How much more is needed to reach a satisfactory finish line? Rather than trying to trim ongoing work, the TAC is seeking to get projects finished. But this is hard to justify if proposals are vague about their current status.

8) The Addendum must contain a Previous Use section that reports on all use by the PI of CfA OIR telescope facilities in the last 3 years. For continuing proposals, this should additionally include all past allocations for the project at hand. A summary of the total allocation is fine; it is not necessary to itemize for each observing run. The report should include the status of data reduction, analysis, and publication of data obtained. Notably this refers to all projects led by the PI, not simply a report on the past allocations to the particular continuing project.

If the number of relevant papers exceeds 5, please supply the total number and then give specific information about a recent set of 5. One can include this list of papers in the bibliography or in a separate list, as desired.

Rationale: The TAC is responsible for monitoring that past allocations of telescope time are leading to publications. Past performance on publication is an important factor in ongoing allocations.

9) Bibliography listings must include the title of papers. Bibliographies do not need to be extensive; it is better to focus on a short list of papers that speak to the current frontier of the field or that support important assumptions in the proposal. Truncation of long author lists is fine, but it is better if short lists are given in full rather than truncating to only the first author.

For those using ADS, one can generate `\bibitem` and `\item` lines with titles using custom formats, such as

```
\bibitem[%\4m%(y)]%{R} %\5.31 %Y,%\({\em }T\{, )%\j,%\V,%\p\n  
\item %\5.31 %Y,%\({\em }T\{, )%\j,%\V,%\p\n
```

Alternatively, one can configure BibTeX to include titles; we're supplying a modification of the `apj.bst` file called `apjtitle.bst` to do that.

Rationale: Titles and co-author listings allow the TAC members to recognize the papers more easily.

10) Finally, the TAC offers the following reminders about proposal content.

The Science Justification should be accessible to TAC members who are not expert in the proposal area. Be sure to describe how the success of the project will advance the field;

low-ranked proposals commonly end at an empirical deliverable without connecting to the key science questions. Be as specific as possible about the hypotheses being tested and why the project requires the proposed scope. Describe how the proposed work compares to past results from you and from others.

The Experimental Design section should describe the observational plan: sample sizes, filter choices, target selection, fiber/slit assignment details, S/N requirements, exposure times, required lunation, expected success rates, etc. Offer quantitative justifications when possible. Proposals that fail to justify their exposure times, make surprising lunation choices, or are unclear on their observational strategy tend to be ranked poorly.

Be sure that your figures are adequately described. Figures with lots of extraneous information tend to be less effective.

Remember to proof-read the cover page. Common errors include truncation of the co-I list, TeX errors in the abstract, and a failure to update information from past proposals.

The TAC chair is available to give feedback on proposals after the selection meeting.