Step 3: Second Level Unit Review and Ranking (Deans/Directors/Department Heads)

Using the program review results posted on the Prioritization Process webpage, please complete the below information and submit to ovcafo@hawaii.edu as a word doc or pdf file by March 15, 2009. Please ensure the e-mail subject heading reflects the Department/School/College name followed by “Second Level Review.” For example: SOEST – Second Level Review.

Department/School/College: Institute for Astronomy

The department would fall under which of the following Vice Chancellor’s offices?

- [ ] Academic Affairs
- X [ ] Research and Graduate Education
- [ ] Student Services
- [ ] Administration, Finance, and Operations

Advisory Committee Members (list names and titles):

Dr. Shadia Habbal, Faculty Chair
Dr. Joshua Barnes, Graduate Chair
Dr. Alan Tokunaga, Associate Director for Instrumentation  
  Director, NASA Infrared Telescope Facility
Dr. Klaus Hodapp, Associate Director IfA Hilo
Dr. Dave Sanders, Chair, Faculty Review Committee
**Administrative Unit (e.g. College) Prioritization Summary**

This form is to be used to provide a summary of program priorities within an administrative unit (e.g. college). Please list each program identified in the Summary Matrix forms and Optional Guides in a priority category. This Prioritization Summary form should be forwarded, along with all self-review materials, to ovcafo@hawaii.edu for posting on the Prioritization Process webpage by March 15th for the next level of review to take place.

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<th>New/ In Transition</th>
<th>Target for Growth or Investment</th>
<th>Maintenance</th>
<th>Reorganize/ Restructure/ Merge/ Consolidate</th>
<th>Reduce in Size or Scope</th>
<th>Phase Out Close Eliminate</th>
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<td>Astronomical Research</td>
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<td>Telescope Operations and Instrumentation</td>
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<td>Graduate Astronomy Degree</td>
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<td>Undergraduate Astronomy</td>
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**Brief Summary (no more than 2 pages)**

Please include a brief narrative with an overview of the rationale for placement of the components on the Prioritization Summary form and any supportive or explanatory text or data that will assist higher levels of review in determining the relative priority of each program. You may wish to comment on the program self-reviews.

The Institute for Astronomy (IfA) is a university institute that is unique. It has led the development of astronomical facilities representing a capital investment of close to $1 billion of extramural funding. It operates its own telescopes and is a partner with all other telescope facilities on Mauna Kea and Haleakala, which are recognized as the world’s largest and most powerful observatories. With an additional extramural investment of more than $1 billion for three new projects, the Thirty Meter Telescope (TMT) and Pan-STARRS on Mauna Kea and the Advanced Technology Solar Telescope (ATST) on Haleakala, the IfA will be able to keep its leading role for the foreseeable future.

Using the tremendous advantage of the best observatory sites and the most powerful telescopes the IfA has become one of most respected astronomy institutes in the world with a research program covering all major areas of modern astronomical science and with a program developing new astronomical instrumentation and telescopes. Simultaneously, a nationally and internationally top-ranked graduate program has been built up, which focuses on training future generations of professional astronomers for academic and research positions.
and which allows students the use of the world leading research equipment in astronomy. These three programs, Astronomical Research, Telescope Operations and Instrumentation, and Graduate Astronomy Degree are extremely successful and have a tremendous potential for the future. They are supported by a significant amount of extramural funding. The self-reviews of these programs are realistic and accurate. The programs fit perfectly into the mission of UH Manoa and are indeed a pillar of academic excellence as well as an engine of economic growth in the State. The local, national and international visibility of these programs - supported by a vigorous outreach and public education effort - is enormous, definitely a source of tremendous prestige for the State and UH.

All three programs are equally important. Telescope Operations and Instrumentation provides the infrastructure and the innovative technological know-how appropriate for the IfA as the host institution for the largest observatories in the world. Astronomical Research is the core mission of the IfA as an ORU and Graduate Astronomical Degree is the logical consequence of the fact that the IfA is a university institute. It is the latter, which makes the IfA unique in comparison with many other large astronomical research institutes in the world.

Given the success, importance and future potential of the three programs it is very obvious that the prioritization options for them can only be “growth” or “maintain as is”. With the enormous potential of the TMT, Pan-STARRS and the ATST one could argue that growth in Astronomical Research and Telescope Operations and Instrumentation would be a consequent step. It would also lead to a further significant increase in extramural funding, thus providing also additional resources for the Graduate Astronomical Degree program, which is mostly extramurally funded. However, the present fiscal reality of UH Manoa makes it hard to request growth. Consequently, maintaining the three programs at their present very successful level is the appropriate option. This will allow to improve our level of excellence by using the new generation of world leading telescopes.

The fourth program of the IfA is Undergraduate Astronomy. This is a remarkable program for an ORU and shows the level of commitment by IfA faculty to contribute to the UH Manoa’s general education program. With a total of 25 sections, the program reaches more than 800 students per year with an upward trend. It is important to note that generally all IfA faculty teach, even though only 4 faculty FTE and 5 TA positions are funded for undergraduate and graduate teaching through the College of Natural Sciences and its Department of Physics and Astronomy. The program has expanded significantly over recent years with additional new courses and more sections at practically no increase in cost to the university. It is also important to note that while formally all IfA astronomy graduate and undergraduate teaching is done through the College of Natural Sciences, both are effectively generic IfA programs. All the effort in planning, organizing, monitoring, evaluating, and directing is done by the IfA.

The self-review of the Undergraduate Astronomy program is accurate and fair. The program makes a significant contribution to UH Manoa at a very low cost for the university. However, there is a clear avenue for improvement. With the unique resources of Mauna Kea and Haleakala, which host the most powerful telescopes in the world, and with an IfA astronomical research program, which belongs among the very best in the world, the program should include a major in astronomy. Given the expertise and the standing of the existing IfA programs, offering an undergraduate degree in astronomy through the IfA would provide UH Manoa with an additional nationally top-ranked program. This is an opportunity, which should not be missed for many reasons, and this is the justification why the program has been put into the “growth” category.

The growth in visibility and local, national and international recognition by introducing a major in astronomy would be substantial, while the increment in funding would be modest, because much of the knowledge and infrastructure already exists. The additional resources required are approximately two FTEs: one instructional faculty member and one secretary to handle program administration. Instruments and hardware for an improved laboratory course would amount to $50K.

When suggesting a new undergraduate degree in astronomy an important point has to be made with regard to
the present status of the IfA as an academic institution at UH Manoa. At the moment the IfA is an ORU. There is a good reason for this administrative status because of the commitment to and the use of the observatories on Mauna Kea and Haleakala. But at the same time, all IfA faculty teach. Tenure and promotion and internal faculty review are carried out under criteria which are identical with those for academic units on our campus and for our academic peer institutions at mainland universities. In addition, the IfA has effectively all the responsibility for its teaching program (and it does all the work), although it officially teaches through the College of Natural Sciences. This is an unnecessary complication, which needs to be straightened out. The academic efforts made by the IfA, which are many, need to be directly linked to the institute so that it gets the full recognition for what it contributes. One way to accomplish this would be to change the IfA from an ORU into a School. The School would have research programs and teaching programs, but now the latter would also formally be under the responsibility of the IfA. This would straighten out a problem that has worked to the disadvantage of the institute many times in the past. Consequently, we could have placed the two teaching programs (or even all four programs) under the “Reorganize/Restructure” category in our prioritization summary form. However, we have not done so at this point, mostly because we realize that the prioritization process is carried out under tremendous time pressure and that the complexity of the issue could probably not be addressed properly. We have to stress, though, that this is an important issue for the future, if UH Manoa continues to be ambitious to take full advantage of its astronomy programs.