FOR FINAL APPROVAL

TO: Arts & Science Council

SPONSOR: Dwayne Benjamin, Vice-Dean, Graduate Education

CONTACT INFO: vicedeangraduate.artsci@utoronto.ca

DATE: February 6, 2019 for February 13, 2019

AGENDA ITEM: 3

ITEM OF BUSINESS:
Closure of the Collaborative Program (Specialization) in Astrophysics (MSc), Department of Astronomy and Astrophysics

JURISDICTIONAL INFORMATION:
The Arts & Science Council has delegated authority to approve major modifications that are defined in the University of Toronto Quality Assurance Process (UTQAP), including the closure of a graduate collaborative specialization.

GOVERNANCE PATH:
1. Graduate Curriculum Committee – February 1, 2019 (for approval)
2. Arts & Science Council – February 13, 2019 (for final approval)
3. Office of the Vice-Provost, Academic Programs (for information), in turn reported to the Committee on Academic Policy & Programs (for information) – May 8, 2019

The Office of the Vice-Provost, Academic Programs will also report this major modification to the Ontario Universities Council on Quality Assurance in the summer of 2019.

HIGHLIGHTS:
The collaborative specialization in Astrophysics (MSc) was established in 1998. It was offered through the Department of Physics and the Department of Astronomy & Astrophysics, with the Canadian Institute for Theoretical Astrophysics (CITA) as a supporting unit. The specialization was intended to amplify the connections between the participating units and their respective disciplines. Enrolments in the collaborative specialization ranged from 0-5 students in the years it was active (1998-2014). In 2002-03, a change to the admission policy of the Department of Astronomy & Astrophysics had a marked impact on the collaborative specialization’s enrolments, going forward. The department established a direct-entry option and moved towards admitting students into that option, rather than the MSc. Since the collaborative specialization was Master’s level only, the option for Astronomy & Astrophysics students to bypass the MSc reduced the pool of students who might apply. As well,
graduate students in both departments had other opportunities to collaborate with the other department, and with CITA, through registration in each department’s courses, for example, and through supervision by a CITA faculty member. Students, then, have the continued ability to pursue research with overlap in physics and astronomy. These opportunities for collaboration, combined with the shift to direct-entry enrolment in the Department of Astronomy & Astrophysics, contributed to the decline of the collaborative specialization and led to the closure of admissions in 2014-15.

The final student enrolled in the specialization completed its requirements in 2013. The participating units have agreed that the specialization should be formally closed through governance.

MOTION:

Be It Resolved
THAT the proposed closure of the Collaborative Specialization in Astrophysics, to which admissions have already been closed as described in the attached proposal dated January 31, 2019, be approved, with full effect on September 1, 2019.
The process followed for the closure of any program is the same as that required for the approval of any new such program.

<table>
<thead>
<tr>
<th>Closure Proposed:</th>
<th>Collaborative Program (Specialization) in Astrophysics (MSc)</th>
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</thead>
<tbody>
<tr>
<td>Please specify precisely what is being closed:</td>
<td>i.e., Graduate diploma, field, certificate, option within a program (e.g., specialist, major, or minor), entire program, or degree (graduate or undergraduate)</td>
</tr>
<tr>
<td>Department / Unit (if applicable):</td>
<td>Department of Astronomy and Astrophysics</td>
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<tr>
<td>Faculty / Academic Division:</td>
<td>Arts &amp; Science</td>
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<tr>
<td>Faculty / Academic Division contact:</td>
<td>Sharon Kelly</td>
</tr>
<tr>
<td>Department / Unit contact:</td>
<td>Professor Christopher Matzner</td>
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<tr>
<td>Effective date program will be closed to new admissions:</td>
<td>September 2014</td>
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<td>Effective date of full closure of program:</td>
<td>September 2019</td>
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<tr>
<td>(date by which students currently in the program will be expected to graduate)</td>
<td></td>
</tr>
<tr>
<td>Version Date:</td>
<td>January 29, 2019</td>
</tr>
</tbody>
</table>
1 Brief Summary

- Please clarify precisely what is being closed
- What is the relationship between what is being closed and any remaining offerings:
  - If only part of a program is being closed, please clarify the relationship between this and those portions of the program that will remain open

This is a proposal to close the Collaborative Specialization* in Astrophysics (MSc), effective September 2019.

This collaborative specialization was offered through the Department of Physics and the Department of Astronomy & Astrophysics, with the Canadian Institute for Theoretical Astrophysics (CITA) as a supporting unit. Admissions to the collaborative specialization were closed in 2014-15, and it was agreed by the participating units and the Faculty of Arts & Science that the specialization should be formally closed through governance at that time.

The last student registered in the collaborative specialization completed the program requirements in 2013. The specialization currently has no registered students.

*In 2006, the nomenclature and definition of Collaborative Program was updated to “Collaborative Specialization,” and all existing collaborative programs were renamed accordingly. Throughout this proposal, the current nomenclature of “specialization” is used.

2 Rationale

Background:

- You may wish to speak to when the program was first created / how long has it been offered / past success of the program
- What has led to the decision to close the program?
- Please provide a full academic rationale
  - You may wish to refer to changing enrolment; changing disciplinary landscape; shifting expertise of the professoriate; poor quality of the academic offering; overlap with other existing programs
  - Where appropriate, you may want to quote from recent unit or program reviews.
  - Explain alignment with the unit’s academic plan

The collaborative specialization (then program) in Astrophysics was proposed in 1997 to amplify the connections between the participating units and their respective disciplines. A 2002 review of the program, describing the academic rationale for its creation, noted that “physics and astronomy are strongly allied disciplines with a
common intellectual origin. The presence of the Canadian Institute for Theoretical Astrophysics (CITA) gave a strong impetus to enhance and formalize the long existing informal collaboration.” (Report of the Committee to Review the Collaborative MSc Program in Astrophysics, June 2002).

The first cohort commenced in academic year 1998-99. The initial enrolment projections for annual cohort intake had been 5 per year. At the time, this represented approximately 10% of admits between both departments. The 2002 review notes that the goal of the specialization was not necessarily to achieve high enrolments, but to attract high quality students and to foster cross-connections between the three participating graduate units. In the ~15 years that the collaborative specialization was active, enrolments ranged from 0-5 students; typically, the enrolment range was 0-2 in any given year (see Table 1, below).

In 2002-03, a change to the admission policy of the Department of Astronomy and Astrophysics had a marked impact on the collaborative specialization’s enrolments, going forward (see Table 1). The department established a direct-entry PhD program and moved towards admitting students into that option, rather than the MSc. The three-year review flagged this as a potential cause for concern – since the collaborative specialization was Master’s level only, the option for Astronomy & Astrophysics students to bypass the MSc would conceivably reduce the pool of students who may apply to the collaborative specialization. The 2002 review estimated that 5 students would start the collaborative program in the 2002-03 academic year. Enrolment statistics, however, show a cohort of zero that year. The direct-entry option enabled students with a qualifying bachelor’s degree to start straight away on a doctoral degree track with the first year of study akin to a master’s curriculum. As the aim of direct-entry was doctoral research, this significantly shifted the focus of that first year of study, with reduced graduate elective course requirements. This, coupled with other opportunities for collaboration between the disciplines (outlined in Section 4), contributed to the decline of the collaborative specialization in Astrophysics, and resulted in its proposed closure.

Table 1: Annual cohort enrolment from 1998-2011

<table>
<thead>
<tr>
<th></th>
<th>98-99</th>
<th>99-00</th>
<th>00-01</th>
<th>01-02</th>
<th>02-03</th>
<th>03-04</th>
<th>04-05</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolment</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
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3 Impact on other programs/units of the proposed closure

- Please provide evidence of consultation with any programs/units/faculties that will be affected
- What are the positive and negative implications that need to be considered in the closure
- Impact on the nature and quality of the division's program of study
- Impact of closure on other units including inter-divisional and inter-institutional agreements/contracts
• Please mention if the courses that supported this degree, program, or program option will continue to be offered

The collaborative specialization in Astrophysics has been effectively defunct since 2014-15, the year that admissions closed (and after the last remaining enrolled student completed the program requirements). Formalizing the program closure through governance will have no impact on other programs or units. The participating units agreed to the program closure in 2014-15. More recently, the Faculty of Arts & Science reached out to the Department of Physics and CITa to let them know that the closure proposal will be taken through governance this academic year (2018-19).

4 Student Accommodation

Please include:

• Current enrolment showing breakdown by year in the program / option being closed

Table 2: Graduate Breakdown

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current enrolment Masters</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

• Provide details concerning how students in progress will be accommodated
  o Will students be allowed to complete their program or be transferred to another program. (In the latter instance please comment on the ease with which they can complete the requirements of the new program and show evidence of consultation if relevant)
  o Deadline by which accommodated students must complete the program – if there are grounds for concern, what are their options if they have not completed the program by that deadline?
  o Capacity/course availability to accommodate affected students
  o Can inactive students reactivate to the closed program?

• What will the impact of the proposed closure be on the range of academic options available to students in the future? (i.e. are there other programs or options that will fill the void that may/may not be created by the closure?)

• Consultation with students
  o Please provide details concerning consultation with students around the proposed change including:
    ▪ Meetings / Town halls/ Emails /Questionnaires
    ▪ Describe any response/ feedback received
  o How will students be notified of the change following approval?

The curriculum for the collaborative specialization was comprised of graduate elective offerings in physics and astronomy & astrophysics and cognate departments - e.g. mathematics – and a
supervised research project. (There were no specialized courses specific to the collaborative specialization.)

The last MSc student enrolled in the collaborative specialization completed the program in 2013. There was continually low interest in a formal degree program between the departments given the alternatives of an MSc degree in Physics or a direct-entry PhD degree in Astronomy & Astrophysics. Both routes allow for overlap in physics and astronomy through informal but sustained arrangements. As well, the graduate elective course requirements in these programs are not as exacting as those of the collaborative specialization, with a greater focal point toward research endeavors.

The Department of Physics and Department of Astronomy & Astrophysics continue to maintain strong ties to the Canadian Institute for Theoretical Astrophysics, which serves as an intersecting point for graduate students in both departments. While the graduate program curriculum differs in the departments, each allows for cross-registration in their respective graduate courses and students from either department may be supervised by a CITA faculty member. As such, graduate students still have the flexibility to pursue research with overlap in physics and astronomy. Currently, there are 20 graduate students (between the two departments) who are supervised by a CITA faculty member and have a close affiliation to the institute.

5 Faculty / Staff Accommodation

- **What is the impact, if any, on faculty and staff of the closure?**

The collaborative program did not require additional resources. While operational, its administration was absorbed by the Department of Astronomy and Astrophysics and the Department of Physics.

The closure of this collaborative specialization, which has been defunct since the 2014-15 academic year, will have no impact on faculty or staff.

6 Governance Process

<table>
<thead>
<tr>
<th>Levels of Approval Required</th>
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<tbody>
<tr>
<td><strong>Decanal / Provostial Sign-Off</strong></td>
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<tr>
<td>Faculty/Divisional Council (approval of closure of minors, where there is a continuing (specialist or major)</td>
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<tr>
<td><strong>Submission to Provost’s Office</strong></td>
</tr>
<tr>
<td>AP&amp;P(approval of program closures: undergrad specialists/majors; minors where there is no specialist of major; graduate fields or diploma, and collaborative programs)</td>
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<tr>
<td>Academic Board (approval of degree, graduate program, diploma closures)</td>
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<tr>
<td>Inclusion in Annual report to Quality Council</td>
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<tr>
<td>Inclusion in Annual report to MTCU (in case of closure of degree)</td>
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