

TCNJ GOVERNANCE MEMORANDUM

To: Committee on Academic Programs
From: Steering Committee
Date: September 20, 2023
Re: **Astrophysics minor**

Background: On June 27, 2023, Steering received an email about a proposed new Astrophysics minor ([Proposal](#)). The new minor has been approved by the School of Science Curriculum committee and Dean. In accordance with the Approval Process for Minors policy, the next step is review by CAP. CAP should consider if there are any units that might be affected by the proposal that have not been considered. CAP will then forward their final recommendation to the Steering Committee.

Charge: Per the Approval Process for Minors policy, Steering asks CAP to:

- review the proposal to inform the committee members regarding the overall scope of the proposed minor.
- verify that all steps in the approval process for the proposed minor have been followed and that, if the minor impacts other units, all the pertinent stakeholders have provided input or been notified of that proposal.
- prepare a final recommendation, indicating concurrence or non-concurrence.

Further testimony is not required.

Testimony Tier: Tier I: The issue requires minimal testimony from the campus community. The assigned council or committee should consult with relevant stakeholders before preparing the final recommendation, but there is no need for surveys or open fora.

Timeline: CAP should complete its work on this charge and send their final recommendation to the Steering Committee by **November 1, 2023** or sooner if possible.

TCNJ Governance Processes

Step 1–Steering issues a charge

Step 2-Governance prepares a Preliminary Recommendation

Once the appropriate standing committee or council has received the charge, it should start by collecting data needed to make a preliminary recommendation. It should receive input from affected individuals and all relevant stakeholder groups prior to making a preliminary recommendation. For issues that have broad implications or that affect a large number of individuals, initial testimony should be solicited from the campus community at large. For some issues, sufficient initial testimony may come from input through committee membership or solicitation from targeted constituent groups. When, in the best judgment of the committee,

adequate clarity of the principles contributing to the problem are known, a preliminary recommendation should be drafted and disseminated to the campus community.

Step 3–The Relevant Stakeholders provide Testimony

Once a preliminary recommendation has been completed, the standing committee or council should seek testimony from the campus community. The testimony should be gathered in accordance with the Testimony Tier (see below) assigned to the issue by Steering.

For issues that require public testimony from the campus community, the chair of the standing committee or council should approach the president of the appropriate representative bodies to schedule the next available time slot at a meeting of that body.

Testimony should be gathered in a way that allows stakeholders to weigh in fully on the issue. Members of the standing committee or council that wrote the preliminary recommendation should be present to hear and record the testimony.

Step 4–Governance prepares a Final Recommendation

Once the standing committee or council has received appropriate testimony, it should revise the preliminary recommendation into a final recommendation. Once the final recommendation is complete, the standing committee or council should use sound judgment to determine whether or not more public testimony is required. If, in its feedback to the original preliminary recommendation, a stakeholder representative body requests to review an issue again, the committee or council is bound to bring it back to that body. If a full calendar year has passed since the formal announcement of the preliminary recommendation, the committee must re-submit a preliminary recommendation to the campus community. When the committee or council has completed the final recommendation, it should forward it to the Steering Committee. The final recommendation should be accompanied by a cover memo that summarizes the initial charge, how testimony was gathered and the nature of that testimony, and how the committee responded to that testimony, including a description of how the preliminary recommendation evolved as a result of testimony.

Step 5–Steering considers the Final Recommendation

Step 6–The Provost and/or President and Board consider the Final Recommendation

Step 7–Steering notifies the Campus Community Testimony

For a complete description of all steps and of the testimony tiers, see Governance Structures and Processes, 2017 Revision, pages 21–24.

The College of New Jersey
New Minor Approval or Change in Minor

Name of Minor: Astrophysics

Term Effective Date: Spring 2023

Home School: School of Science

Home Department: Physics

Type of Approval

New Minor within a Department

New Interdisciplinary Minor

Modification of Existing Minor

Deactivation of Existing Minor (no replacement)

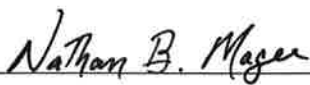
Briefly describe the minor and its requirements. For interdisciplinary minors, list other departments and schools with courses included in the minor.

The astrophysics minor is intended to promote preparation in astrophysics and to help prepare for graduate work in physics, astronomy, geophysics, interdisciplinary sciences, engineering or to improve skills and competency for careers in industry, public service, or teaching.

The requirements for the minor include PHY 201/203, an introductory course to astronomy (PHY 162 or PHY 163), a minimum of two astrophysics courses (PHY 361, PHY 413, and PHY 466), and one additional specialized course.

Initial Approval

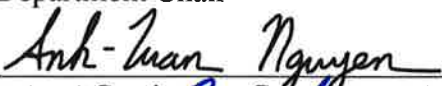
In the case of new minors, the signatures indicate that all affected units within a school have reviewed the attached proposal, and that the attached proposal includes a detailed outline of the curriculum and needed resources such as: a. faculty and support of instruction for all units involved; b. library resources; c. equipment, laboratory support, and computer support; and d. facilities for all units involved. If the minor does not involve courses outside the home department, the proposal is submitted to the Steering Committee after this step.



Department Chair

10/13/2022

Date



School Curriculum Committee Chair

2/23/2023

Date



Dean

6/26/23

Date

In the case of interdisciplinary minors, the new minor proposal must also include signatures from the department chairs of all affected units, indicating their review. On this form, include approvals from curriculum committees and deans of all involved schools. The role of the school curriculum committee(s) is to ensure that all procedures have been followed in the approval process, including review by all affected departments, and that the proposed minor is consistent with the mission of the College and can be reasonably supported with resources.

Curriculum Committee

Date

Dean

Date

Curriculum Committee

Date

Dean

Date

Curriculum Committee

Date

Dean

Date

College Governance

If recommended by the school committee(s), the proposal is submitted to the Steering Committee to be forwarded to the Committee on Academic Programs (CAP) for its review and recommendation.

Steering (indicating review by CAP)

Date

Final Approval

Provost

Date

Astrophysics Minor - New

Description and Requirements

Brief description of the minor that includes the rationale, need, and demand for it:

The astrophysics minor is intended to provide TCNJ students the opportunity to learn astronomy and astrophysics. Each semester, over 75 students complete an introductory course on astronomy (PHY 162/163) to satisfy their liberal learning requirements (Natural Science with lab), including 5-7 physics majors. Unfortunately, despite their eagerness to continue learning astronomy and astrophysics, most students will not continue taking courses, typically explaining that they would rather spend their time and money on courses that are required for their degrees. Since very few students will switch their major to Physics or enroll in the physics minor purely for their interest in astronomy, incentivization like adding a minor to their degree could enable them to continue taking astrophysics courses here at TCNJ.

This new minor provides students with the opportunity to continue learning astrophysics beyond their liberal learning requirements. The minor is achievable for all students at TCNJ, especially those pursuing degrees in STEM fields. Although not intended for Physics majors, Physics majors would be able to pursue the astrophysics minor as long as they pursue a different specialization to avoid double-counting more than one course.

In addition to the benefits to students, this new minor will increase the number of students enrolling in upper-level physics courses, which are often under-enrolled compared to College expectations.

Outline of minor

The astrophysics minor would require:

- PHY 162/163
- PHY 201/203
- Two of the following: PHY 361, PHY 413, PHY 466
- One of the following: PHY 311, PHY 321, PHY 345, PHY393/493**, PHY 411, PHY 421, PHY 425, PHY 426, PHY 431, PHY 361 (if not selected above), PHY 413 (if not selected above), PHY 466 (if not selected above)

** Requires a short justification of how the project will add to the student's understanding of astronomical content to be approved by the Astro minor advisor

All of the required and optional courses for this minor are already established and offered to students, so the minor will not require additional faculty or faculty working hours. Laboratory courses such as PHY 201 and PHY 311 require the necessary lab space and equipment. In addition, the astrophysics courses such as PHY 162/163 and PHY 466 require use of the rooftop telescopes and the planetarium. We will review minor enrollments and course sequences in two years for any necessary changes.

Consistency with relevant missions

The changes to the minor are consistent to the missions of the Department, School, and College. See reproduced mission statements below.

Mission Statements

Department

The TCNJ Department of Physics promotes a culture of intellectual engagement centered on the natural sciences. This culture is shared by a community of undergraduate students, faculty, staff and alumni. The faculty members are teacher-scholars who are dedicated to excellence in teaching and are deeply engaged in the production and dissemination of new knowledge. Using modern pedagogy in the classroom and collaborations between students and faculty in research, it is the goal of the faculty to instill in all students a sense of scientific inquiry that employs systematic, experimental, mathematical and computational approaches to answering questions about the natural world. The current community of faculty and students study phenomena on scales ranging from nanometers to the size of the universe. They conduct research in materials science, optics, atmospheric science, biophysics, physics education, seismology, astronomy, astrophysics and cosmology. Through these endeavors the faculty members strive to challenge students and to foster critical thinking. By developing intellectual ability, technical knowledge, quantitative reasoning, logical thinking, communications skills and ethical standards for practicing modern science, the ultimate mission of the faculty is to prepare students to excel in a very wide array of careers and to be informed and engaged citizens.

School of Science

The School of Science provides a high quality and challenging education for exceptional undergraduate students, offering studies in the sciences as well as interdisciplinary fields. Students interact with outstanding teacher-scholars as instructors, advisors, and mentors, and have access to modern, well-equipped facilities for hands-on experiences. Faculty members integrate comprehensive undergraduate research experiences into their scholarship, actively preparing students to meet future career or graduate school goals. An array of support programs is designed to provide any student with a desire to study in the School of Science the opportunity to succeed. The liberal arts setting of the College and the balance of theory and practice in the School prepare each student for lifelong learning and for contributing to the field and to society at large.

College

The College of New Jersey, a nationally recognized public institution founded in 1855 as the New Jersey State Normal School, is a primarily undergraduate and residential college, with targeted graduate programs. Grounded in the liberal arts, TCNJ's personalized, collaborative, and rigorous education engages students at the highest level within and beyond the classroom. TCNJ believes in the

transformative power of education to develop critical thinkers, responsible citizens, and lifelong learners and leaders. The College empowers its diverse students, staff, and faculty to sustain and enhance their communities both locally and globally.

TCNJ will offer an unparalleled education in a vibrant, collaborative, and inclusive community of learners who will make a distinct mark on the world. By following our values, we will serve as a national exemplar of public higher education, and we will do this while being committed to accessibility and affordability.

Excellence: we admit highly talented students, whom we challenge to discover and realize their potential; we recruit the highest quality faculty, staff and administrators who have the expertise and experience to mentor and challenge our students; we support innovation and experimentation and continue to build on our accomplishments. We hold the highest expectations for ourselves and support each other in achieving them.

Engagement: we encourage students, faculty, and staff to pursue their curiosities and passions inside and outside the classroom; we collaborate across disciplinary and operational boundaries to draw on all our strengths; we work together to enrich our local, national, and global communities.

Integrity: we treat each other with civility and respect; we act ethically and take responsibility for our choices; we work together in a spirit of fairness, cooperation, and transparency.

Inclusiveness: we recognize the unique worth of each member of our community; we believe that a community composed of people with diverse backgrounds, perspectives, and abilities promotes learning and engagement; we are committed to building a diverse and inclusive community.

Self-reflection: we assess our practices in the classroom, on campus, and in the community; we nurture ongoing campus dialogue to ensure that we adhere to our mission, vision, and values; we routinely monitor the allocation and expenditure of our resources in order to assure that we are supporting priorities and that we are fiscally responsible.

**SCHOOL OF SCIENCE CURRICULUM COMMITTEE MEETING SUMMARY
NOVEMBER 21, 2022**

Committee Members Participating: Levi Ekanger (Chemistry), Jikai Lee (Computer Science), Curt Elderkin (Biology), Tuan Nguyen (Chair, Physics)

SUMMARY NARRATIVE:

The Curriculum Committee met on 11/21/2022 to review a new Astrophysics Minor proposal.

The Committee reviewed and discussed this proposal. Overall, the Committee was supportive of the proposed minor, which gives students interested in astronomy and astrophysics a formal, academic program beyond their liberal learning requirements. In addition, this new minor has the potential to increase the number of students enrolling in upper-level physics courses, which are often under-enrolled compared to College expectations.

The Committee voted to approve the proposal pending a small change be made to the wording found in the "Outline of minor" section.

Update: The requested revision was recently received on Feb. 23, 2023. As agreed, the Committee moves forward with its recommendation below.

Committee Recommendation: The Curriculum Committee recommends the approval of a new Astrophysics Minor as proposed by the Physics Department.