Five-Year Faculty Hiring Plan

# As recommended in the review report from the 2020-2021 Collegiate Review, academic units should submit a five-year faculty hiring plan by *November 1, 2023 at 5pm.* The directives for this plan will refer to these academic units as “departments,” but schools, divisions, and programs should adapt the requests accordingly.

# This faculty hiring plan should be developed considering the department’s enrollment trends, curricular needs, and areas of research strength. It should be driven by the department’s strategic plan and direction over the next five years. The plan should take into consideration changes to the curriculum that may be occurring as faculty join or leave the department and changes to the field.

## Components of Hiring Plan (3 Pages)

**Page 1:** **Assessment of department and summary of strategic direction.**   
This should also include a summary of changes in faculty composition during the past two academic years and anticipated changes in the future. Departments should include their undergraduate major student-to-faculty ratio as part of this process, noting if the ratio is appropriate for their department and discipline.

**Page 2: Hiring plan indicating which year hires are requested to occur.**   
Using the table provided in the following pages of this document, provide the requested details for each position.

**Page 3: Departmental plan should CLAS not be able to meet requested faculty hires.**

## Submission Instructions

### Faculty hiring plans should follow the template provided on the following pages. Plans should be submitted using the online CLAS Filing Cabinet no later than November 1, 2023 at 5pm: <https://apps.clas.uiowa.edu/FileCabinet/home>

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**Page 1: Assessment of department and summary of strategic direction.**

The Math Department has a long tradition of excellence and plays a central role in the mission of the university by contributing to high-quality research, teaching and public engagement. In the latest graduate/professional rankings of the U.S. News & World Report, our Math program is ranked 53rd among all the Math programs in the U.S. As a comprehensive Math department in a large public R1 university, we have a strong presence in core and applied mathematics research areas. We expect the retirement of ten or more faculty members in the next five years, and we are facing the serious issue of losing strengths in our research areas or losing completely some areas. It is critical for the department to maintain a reasonable size of its three strategically important areas through new hires in the next five years: **Analysis/PDEs**, **Algebraic Geometry**, and **Interdisciplinary Applied Math**. Each area needs to hire 3 new faculty in the next five years. The current undergraduate major student-to-faculty ratio is close to 7. This ratio is within the range of peer Math Departments. The number of Math majors is expected to increase in the next five years due to the redesign and modernization of the Math curriculum. The new hires in the three strategic areas will attract more undergraduate students to claim Math as their major or to take more Math courses. The department offers many service courses to a large number of students on campus; the number of service semester hours per faculty is nearly 800. With the increased enrollments in introductory Math courses in the next couple of years and to address the issue of the student retention rate in the university, the department needs to hire 2 to 3 instructional-track faculty in the next five years.

The Math Department is a national leader in DEI, specifically in graduate education, with 51 URM students earning Ph.D. in the Math programs, 14 of those during the recent period 2018-2023.  These efforts have earned the department and its faculty multiple highest honors from the American Mathematical Society (“Programs that Make a Difference” and “Exemplary Program” awards) and the President of the United States (two PAESMEM awards).  Running a graduate program that successfully trains students from the whole spectrum of domestic and international backgrounds requires significantly more faculty time investment than other models of graduate education which are common in sciences.  Investment in tenure-track faculty for the Math Department directly supports our ability to continue this mission and serve as a model for other departments at Iowa, particularly in the sciences, who may wish to develop diverse and inclusive graduate programs.

**Analysis/PDEs.** The department wants to enhance the research group in analysis/PDEs which is one of the most active and central research groups in the department and yet, it faces challenges to perform its mission in teaching and research. The vibrant group, with the support of new hires,  will design new undergraduate curriculum, develop collaborations with other groups in the department and groups in the college and across the university. The analysis/PDEs will synergize the research in applied mathematics and pure mathematics. This synergy will contribute and improve our ability to study complex physical and biological phenomena such as weather, climate, plasma, supercomputing, and cancer growth and thus build a character defining community for the university.

**Algebraic Geometry.** The department has an active group of faculty members in algebra, topology, and mathematical physics, who all work on topics related to algebraic geometry. Hiring in algebraic geometry will unify and strengthen the work currently done in these different core areas through collaborations and joint training of undergraduate students, graduate students, and postdocs. Additionally, the new hires will help modernize the undergraduate curriculum for math majors using computational and theoretical tools from algebraic geometry. This should also attract undergraduate majors from other areas, such as physics and CS, which often use geometric constructions, e.g., in image processing and cryptography. As a result, this will help increase the number of math majors and double majors.

**Interdisciplinary Applied Math.** The department has an active group of faculty members conducting research on interdisciplinary applied math, ranging from numerical analysis and scientific computing to applications in biological and physical sciences. They work closely with researchers in numerous disciplines on campus, publishing papers, receiving grants and training students jointly. With the increasingly important data-driven applications of mathematics in other disciplines, the department needs to reinforce the strength in interdisciplinary applied math. The new hires in this area will collaborate closely with researchers within the department and from other departments of the college. They will help modernizing the Math curriculum, boosting the number of majors in Math and in other science departments, as well as the number of student credit hours.

### Page 2: Hiring plan indicating which year hires are requested to occur

In the table below, indicate the department’s requested faculty hiring plan by year. There should be years that no hires are requested.

In the Urgency column, enter the corresponding number (1-3) for each hire where 1=High Urgency, 2=Medium Urgency, 3=Low Urgency. Not all hires should be considered high urgency and/or requested in the first year. There should be no more than one high urgency request each year, as the collegiate hiring plan will take into consideration the needs of all departments. Just because a need is rated as high urgency is not a guarantee that the hire will be met.

In the Strategic Priority column, enter the corresponding number (1-3) for each hire where 1=Immediate Strategic Priority, 2=Mid-Range Strategic Priority, 3=Long-Term Strategic Priority.

In the next column, enter whether the rating codes primarily relate to priorities in Teaching, Research, or Both.

In the Track column, enter whether the position will be Tenure-Track, Instructional-Track, or Clinical-Track.

In the Title/Area column, enter the title of the position and any corresponding strategic area(s).

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| --- | --- | --- | --- | --- | --- | --- |
| Search Year | Anticipated Start Date | Urgency  (1-3) | Strategic Priority  (1-3) | Ratings Primarily Related to Teaching, Research, or Both? | Track  (TT, IT, or CT) | Position Title and Strategic Area |
| 2024-2025 |  |  |  |  |  |  |
| 2025-2026 |  |  |  |  |  |  |
| 2026-2027 |  |  |  |  |  |  |
| 2027-2028 |  |  |  |  |  |  |
| 2028-2029 |  |  |  |  |  |  |

**Narrative - Please provide a brief justification of how you’ve assigned the ratings above based on data:**

### Page 3: Departmental plan should CLAS not be able to meet requested faculty hires.

The Mathematics Department is focusing its efforts on several fronts. The department is maintaining its national leadership position in the DEI, especially in the training of URM students in the Math programs, despite shrinking available resources. The department is undergoing a curriculum reform and modernization, in an effort to increase the number of Math majors, the number of student credit hours and to address the issue of student retention rate. Several major-oriented undergraduate courses have been recently redesigned. New courses at both undergraduate level and graduate level on hot areas have been developed and offered. Redesign of introductory Math courses is in progress to improve the student retention rate. Strength in the three strategic hiring areas is crucial for the scholarship reputation and prestige of the department in the community. The requested faculty hires are necessary for the success of the department in all these fronts. Should CLAS not be able to meet the requested faculty hires, the department will still strive to be successful in these fronts, although realistically, some scaling down will be necessary. For instance, if the hiring in a particular strategic area is not fulfilled as planned, less scholarship output can be expected and the goal of achieving excellence in the area may not be fully reached. Similarly, if fewer lecturers are hired, high-quality delivering of all our introductory courses may become an issue and that will negatively impact our effort of improving the student retention rate. To ensure that the department will continue to excel in the URM Ph.D. student training and other DEI effort, it is necessary to prevent the department from further declining in the number of faculty FTE.