



# Research Executive Plan

Bachelor of Science in Mathematics Program

Faculty of Science

Islamic University of Madinah

2024/2025

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## Introduction

Scientific research is crucial in advancing society, impacting economic, scientific, cultural, and social spheres. As a foundational element of sustainable development, it receives significant attention and funding from most developed nations to boost progress and innovation.

Scientific research has many definitions, yet a Nobel Prize-winning medical researcher offered a compelling one: it is the ability to observe what everyone else sees but thinks in ways no one else has imagined.

Scientific research can only reach its goals within a structured, systematic, and equitable framework guided by clear priorities that align with societal development needs. In this spirit, the Islamic University has crafted plans to advance research that are aligned with the objectives of Vision 2030. This commitment is evident in its third strategic plan, which focuses on "scientific research excellence" and fosters a globally recognized research environment. The plan emphasizes advancing research, innovation, and entrepreneurship, especially through its eighth goal, which supports and funds initiatives for scientific progress.

The faculty research executive plan for 2024–2025 directly reflects the university's ambitious strategic vision, emphasizing the importance of scientific research. It highlights the commitment of the college's administration and faculty to align their goals with advancing research in their applied and scientific specialties, leveraging the university's resources and strong institutional support.

Our program research plan has been prepared based on the faculty goals and requirements generated by the university's research goals.

# Mission and Goals of the Bachelor of Science in Mathematics Program

## Mission

Preparing qualified cadres in mathematics and its applications to meet the needs of the labor market within the framework of a scientific and research environment that supports innovation, sustainability, and entrepreneurship.

## Values

### ▪ Diversity

- ✓ Respecting the cultural diversity of students and staff within the framework of Islamic values.
- ✓ Applying the principle of equality among different categories of its members.

### ▪ Quality

- ✓ Applying quality standards in education, scientific research, and community service.
- ✓ Working in a team spirit through cooperation and teamwork.
- ✓ Enhancing effective communication with graduates and relevant stakeholders (faculty, staff, students, partners, and the local and international community).

### ▪ Responsibility

- ✓ Excellence in the field of mathematical sciences and their

applications.

- ✓ Excellence in meeting the needs of society and the labor market.

## ■ **Honesty**

- ✓ Working with honesty and transparency to achieve justice and enhance trust and credibility.
- ✓ Preserving intellectual property rights and adhering to scientific integrity.

## ■ **Creativity**

- ✓ Developing the spirit of innovation and initiative in education, scientific research, and community service.
- ✓ Guaranteeing intellectual freedom for all members within the framework of Islamic and university values and societal constants.

## Research Executive Plan Summary

The research executive plan of the Master of Science in Mathematics Program in the Faculty of Science at the Islamic University is based on the following:

- Vision and mission of the university and faculty.
- The third strategic plan of the university.
- The university's five-year research plan.
- The faculty executive plan.
- Analyzing the internal work environment, including identifying the most prominent strengths and challenges.
- Scientific publications of faculty members in the faculty for previous years, including the program outputs.
- Executive cards for research objectives with a specific time frame.

## The Analysis of the Department Environment

Analyzing the work environment in the Mathematics Department contributes to knowing the real potential and the actual level, and there is no doubt that this will determine the strengths to work on enhancing and maintaining, as well as knowing the weaknesses to work on developing plans to address them. Accordingly, the Executive Plan Team analyzed the current research status of the department and identified the potential and challenges, which are as follows:

### **Prominent strengths:**

- The presence of an elite group of distinguished faculty members in the educational and research process.
- The diversity of department members at the faculty from different scientific backgrounds.
- The faculty provides modern infrastructures of equipped classrooms and laboratories containing many advanced research devices with high specifications.
- Continuous support from the university to support scientific research.
- The undergraduate program in Mathematics obtains conditional academic accreditation.
- The existence of our postgraduate program for the master's level.
- Involving the evaluation of faculty members' job performance with research output (15%).
- The existence of awards allocated by the university for excellence in scientific research.
- The possibility of research cooperation between members of the department and the assembly of integrated research groups

## **The most prominent challenges:**

- The lack of public knowledge about the existence of applied scientific colleges at the Islamic University.
- Weak scientific and research cooperation and scientific partnerships with local, regional, and international research centers and academic institutions.
- The existence of some technical problems in some scientific equipment.
- Weakness of student research contribution at the postgraduate level.
- Deficiency of participation in conferences and research seminars due to the lack of necessary support according to the university's internal regulations.
- Limited research support.
- Increase administrative duties for the staff.
- Lack of support for paying publication fees in indexed journals.



## Faculty of Science Objectives

- 1 .Achieving beneficiaries' satisfaction.
- 2 .Developing teaching and learning experiences in an environment that stimulates creativity and innovation.
- 3 .Improving the quality of learning outcomes.
- 4 .Developing the scientific research system.
- 5 .Enhancing integration and partnerships with relevant institutions and authorities by aligning specializations with the needs of the labor market.
- 6 .Enhancing communication with faculty graduates.
- 7 .Developing community partnerships and sustainable development.
- 8 .Developing an effective governance system.
- 9 .Developing the skills and capabilities of college employees.
10. Developing faculty procedures and digitization.

## **Faculty of Science research executive objectives**

1. Increase cooperation between different departments and local and international research institutions.
2. Encouraging publication in reputable scientific journals.
3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities.
4. Involve students in research activities and encourage them to participate in conferences.
5. Organizing the Annual Scientific Research Week.
6. Collecting the research output of the faculty members.

## **Bachelor of Science in Mathematics Program goals**

1. Preparing qualified cadres in mathematics and its applications.
2. Developing students' skills to keep pace with continuous changes in the labor market.
3. Raising the rate of scientific publishing for faculty members in the program.
4. Meet the ever-changing labor market needs of program graduates.
5. Developing the capabilities of program employees to support innovation, sustainability, and entrepreneurship.

# **Bachelor of Science in Mathematics research executive**

## **goals**

1. Increase cooperation between departments, subspecialties, and local and international research members.
2. Encouraging publication in reputable scientific journals.
3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities.
4. Involve students in research activities and encourage them to participate in conferences.
5. Organizing the Annual Scientific Research Week.
6. Collecting the research output of the department members.

**The alignment of the Faculty of Science research executive objectives with the  
Faculty of Science objectives**

| <b>Faculty of Science research executive objectives</b>                                                                                             |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| <b>Faculty objectives</b>                                                                                                                           | 1. Increase cooperation between different departments and local and international research institutions. | 2. Encouraging publication in reputable scientific journals. | 3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities. | 4. Involve students in research activities and encourage them to participate in conferences. | 5. Organizing the Annual Scientific Research Week. | 6. Collecting the research output of the faculty members. |
| 1. Achieving beneficiaries' satisfaction                                                                                                            |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 2. Developing the teaching and learning experience in an environment that stimulates creativity and innovation                                      |                                                                                                          |                                                              |                                                                                                                                                | ✓                                                                                            |                                                    |                                                           |
| 3. Improving the quality of learning outcomes                                                                                                       |                                                                                                          |                                                              |                                                                                                                                                | ✓                                                                                            | ✓                                                  |                                                           |
| 4. Developing the scientific research system                                                                                                        | ✓                                                                                                        | ✓                                                            | ✓                                                                                                                                              | ✓                                                                                            | ✓                                                  | ✓                                                         |
| 5. Enhancing integration and partnerships with relevant institutions and authorities by aligning specializations with the needs of the labor market | ✓                                                                                                        |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 6. Enhancing communication with faculty graduates                                                                                                   |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 7. Developing community partnerships and sustainable development                                                                                    | ✓                                                                                                        |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 8. Developing an effective governance system                                                                                                        |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 9. Developing the skills and capabilities of college employees                                                                                      |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 10. Developing faculty procedures and its digitization                                                                                              |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |

**The alignment of the Faculty of Science research executive objectives with the  
Bachelor of Science in Mathematics goals**

| Faculty of Science research executive objectives                                                                 |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| Program Goals                                                                                                    | 1. Increase cooperation between different departments and local and international research institutions. | 2. Encouraging publication in reputable scientific journals. | 3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities. | 4. Involve students in research activities and encourage them to participate in conferences. | 5. Organizing the Annual Scientific Research Week. | 6. Collecting the research output of the faculty members. |
| 1 - Preparing qualified cadres in mathematics and its applications.                                              |                                                                                                          |                                                              |                                                                                                                                                | ✓                                                                                            | ✓                                                  |                                                           |
| 2- Developing students’ skills to keep pace with continuous changes in the labor market.                         | ✓                                                                                                        | ✓                                                            | ✓                                                                                                                                              | ✓                                                                                            | ✓                                                  | ✓                                                         |
| 3 - Raising the rate of scientific publishing for faculty members in the program.                                | ✓                                                                                                        | ✓                                                            |                                                                                                                                                | ✓                                                                                            |                                                    |                                                           |
| 4 - Meet the ever-changing labor market needs of program graduates.                                              | ✓                                                                                                        |                                                              |                                                                                                                                                | ✓                                                                                            |                                                    |                                                           |
| 5 - Developing the capabilities of program employees to support innovation, sustainability, and entrepreneurship | ✓                                                                                                        |                                                              |                                                                                                                                                | ✓                                                                                            |                                                    |                                                           |

**The alignment of the Faculty of Science research executive objectives with the  
Bachelor of Science in Mathematics goals**

| <b>Faculty of Science research executive objectives</b>                                                                                         |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| <b>Program executive goals</b>                                                                                                                  | 1. Increase cooperation between different departments and local and international research institutions. | 2. Encouraging publication in reputable scientific journals. | 3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities. | 4. Involve students in research activities and encourage them to participate in conferences. | 5. Organizing the Annual Scientific Research Week. | 6. Collecting the research output of the faculty members. |
| 1 - Increase cooperation between departments, subspecialties, and local and international research members.                                     | ✓                                                                                                        |                                                              |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 2 - Encouraging publication in reputable scientific journals.                                                                                   |                                                                                                          | ✓                                                            |                                                                                                                                                |                                                                                              |                                                    |                                                           |
| 3 - Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities. |                                                                                                          |                                                              | ✓                                                                                                                                              |                                                                                              |                                                    |                                                           |
| 4 - Involve students in research activities and encourage them to participate in conferences.                                                   |                                                                                                          |                                                              |                                                                                                                                                | ✓                                                                                            |                                                    |                                                           |
| 5 - Organizing the Annual Scientific Research Week.                                                                                             |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              | ✓                                                  |                                                           |
| 6 - Collecting the research output of the department members.                                                                                   |                                                                                                          |                                                              |                                                                                                                                                |                                                                                              |                                                    | ✓                                                         |

## Research Priorities and Targets for 2024–2025

| Research                                    |                                               | Scientific Department | Research Targets |      |
|---------------------------------------------|-----------------------------------------------|-----------------------|------------------|------|
| Domains                                     | Priorities                                    |                       | 2024             | 2025 |
| Basic Science Research and its Applications | Applied and Computational Mathematics         | Mathematics           | 10               |      |
|                                             | Algebra and its Applications                  |                       | 10               |      |
|                                             | Statistics and its applications               |                       | 7                |      |
|                                             | Analysis and its Applications                 |                       | 8                |      |
|                                             | Differential geometry and its applications    |                       | 8                |      |
|                                             | Differential equations and their applications |                       | 9                |      |
| Total                                       |                                               |                       | 52               |      |



## Faculty of Science research executive objectives achievement cards

| Executive goal -1                                                                                       |                                                          |                       |              |      | Performance indicator             | Year        |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------|--------------|------|-----------------------------------|-------------|
| Increase cooperation between departments, subspecialties, and local and international research members. |                                                          |                       |              |      | Number of scientific partnerships | 2024 - 2025 |
|                                                                                                         |                                                          |                       |              |      |                                   |             |
| Activities<br>(Steps and Procedures)                                                                    | Responsible                                              | Implementation period |              | Cost | Completion rate                   | comments    |
|                                                                                                         |                                                          | From                  | To           |      |                                   |             |
| Organizing workshops to exchange research ideas among departments                                       | Scientific Research Committee and Scientific Departments | 28 – 9 -2024          | 20 -11 -2025 |      |                                   |             |
| Working to build local, regional, and global partnerships                                               |                                                          | 30 -10 -2024          | 10 -10 -2025 |      |                                   |             |
| Encourage joint multidisciplinary research projects                                                     |                                                          | 30 -8 - 2024          | 15 -12 -2025 |      |                                   |             |

| Executive goal -2                                                                                      |                                                          |                       |              | Performance indicator              | Year            |          |
|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------|--------------|------------------------------------|-----------------|----------|
| Encouraging publication in reputable scientific journals                                               |                                                          |                       |              | Number and quality of publications | 2025            |          |
|                                                                                                        |                                                          |                       |              |                                    |                 |          |
| Activities<br>(Steps and Procedures)                                                                   | Responsible                                              | Implementation period |              | Cost                               | Completion rate | comments |
|                                                                                                        |                                                          | From                  | To           |                                    |                 |          |
| Providing training on preparing research for publication in reputable journals                         | Scientific Research Committee and Scientific Departments | 30 – 8 -2024          | 14 -12 -2025 |                                    |                 |          |
| Establish a mechanism for financial incentives for faculty members based on the quality of publication | Deanship of Scientific Research                          | 1 -3 -2025            | 30 -5 -2025  |                                    |                 |          |
| Providing a list of the most reputable scientific journals                                             | Scientific Research Committee                            | 28 - 9 - 2024         | 10 -10 -2024 |                                    |                 |          |

| Executive goal -3                                                                                                                                 |                                               |                       |              |      | Performance indicator              | Year        |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------------|--------------|------|------------------------------------|-------------|
| <b>Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities</b> |                                               |                       |              |      | Number of faculty members enrolled | 2024 - 2025 |
|                                                                                                                                                   |                                               |                       |              |      |                                    |             |
| Activities<br>(Steps and Procedures)                                                                                                              | Responsible                                   | Implementation period |              | Cost | Completion rate                    | comments    |
|                                                                                                                                                   |                                               | From                  | To           |      |                                    |             |
| Survey of scientific departments' needs regarding faculty members                                                                                 | Scientific Department Chairs/<br>Coordinators | 2 – 11 -2024          | 15 -12 -2024 |      |                                    |             |
| Submitting lists of needs to the faculty administration and recommending the recruitment of members with distinguished research experience        |                                               | 20 -12 -2024          | 30 -12 -2024 |      |                                    |             |

| Executive objective -4                                                                   |                                                                     |                       |              |      | Performance indicator                                   | Year        |
|------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------|--------------|------|---------------------------------------------------------|-------------|
| Involve students in research activities and encourage them to participate in conferences |                                                                     |                       |              |      | Number of students participating in research activities | 2024 - 2025 |
|                                                                                          |                                                                     |                       |              |      |                                                         |             |
| Activities<br>(Steps and Procedures)                                                     | Responsible                                                         | Implementation period |              | Cost | Completion rate                                         | comments    |
|                                                                                          |                                                                     | From                  | To           |      |                                                         |             |
| Providing individual research guidance to students willing to participate in research    | Academic<br>Department Chairs/<br>Coordinators -<br>Faculty Members | 2 – 9 -2024           | 15 -12 -2025 |      |                                                         |             |
| Allocate time in academic programs to train students in research methods                 |                                                                     | 2 -9 -2024            | 15 -12 -2025 |      |                                                         |             |
| Organizing an annual competition for the best student’s research                         |                                                                     | 2 - 5 - 2025          | 30 -5 -2025  |      |                                                         |             |

| Executive objective -5                                                                            |                                                        |                                |             |      | Performance indicator      | Year        |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------|-------------|------|----------------------------|-------------|
| <b>Organizing the Annual Scientific Research Week</b>                                             |                                                        |                                |             |      | Research output statistics | 2024 - 2025 |
| Activities<br>(Steps and Procedures)                                                              | Responsible                                            | Implementation period          |             | Cost | Completion rate            | comments    |
|                                                                                                   |                                                        | From                           | To          |      |                            |             |
| Controlling research contributions based on the research priorities of the scientific departments | Scientific Research Committee                          | 1 – 2 -2025                    | 15 -2 -2025 |      |                            |             |
| Expanding student participation in scientific poster exhibitions and scientific seminars          | Scientific Departments - Scientific Research Committee | 1 -2 -2025                     | 15 -2 -2025 |      |                            |             |
| Honoring distinguished researchers from scientific departments                                    | Scientific Research Committee                          | Closing ceremony of activities |             |      |                            |             |

| Executive objective -6                                                        |                               |                       |             |      | Performance indicator      | Year        |
|-------------------------------------------------------------------------------|-------------------------------|-----------------------|-------------|------|----------------------------|-------------|
| <b>Collecting the research outputs of the faculty members</b>                 |                               |                       |             |      | Research output statistics | 2024 - 2025 |
|                                                                               |                               |                       |             |      |                            |             |
| Activities<br>(Steps and Procedures)                                          | Responsible                   | Implementation period |             | Cost | Completion rate            | comments    |
|                                                                               |                               | From                  | To          |      |                            |             |
| Collecting the research output of the faculty members for the calendar year   | Scientific Research Committee | 30 – 1 -2025          | 15 -2 -2025 |      |                            |             |
| Collecting the research output of the college's members for the academic year |                               | 30 - 5 -2025          | 10 -6 -2025 |      |                            |             |

- **Evaluation of the achievement of the research executive objectives.**

| 1446 H                                                                                                                                         |           |            |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------|-----------------------|
| Research executive objectives                                                                                                                  | Strengths | Weaknesses | Points of Improvement |
| 1. Increase cooperation between different departments and local and international research institutions.                                       |           |            |                       |
| 2. Encouraging publication in reputable scientific journals.                                                                                   |           |            |                       |
| 3. Attracting distinguished faculty members with experience in modern research trends within the framework of the faculty research priorities. |           |            |                       |
| 4. Involve students in research activities and encourage them to participate in conferences.                                                   |           |            |                       |
| 5. Organizing the Annual Scientific Research Week.                                                                                             |           |            |                       |
| 6. Collecting the research output of the faculty members.                                                                                      |           |            |                       |

| Research                                    |                                               | Scientific Department | 2024   |          |
|---------------------------------------------|-----------------------------------------------|-----------------------|--------|----------|
| Domains                                     | Priorities                                    |                       | target | achieved |
| Basic Science Research and its Applications | Applied and Computational Mathematics         | Mathematics           | 10     |          |
|                                             | Algebra and its Applications                  |                       | 10     |          |
|                                             | Statistics and its applications               |                       | 7      |          |
|                                             | Analysis and its Applications                 |                       | 8      |          |
|                                             | Differential geometry and its applications    |                       | 8      |          |
|                                             | Differential equations and their applications |                       | 9      |          |
| Total                                       |                                               |                       | 52     |          |



- **Improvement plan for 1446 H**

| Initiative/<br>Activity | Actions | Action<br>Responsibility | Start date | End date | Achievement indicator | Target<br>benchmark |
|-------------------------|---------|--------------------------|------------|----------|-----------------------|---------------------|
|                         |         |                          |            |          |                       |                     |
|                         |         |                          |            |          |                       |                     |
|                         |         |                          |            |          |                       |                     |

- **Follow-up plan for 1446 H.**

| Initiative | Actions | Start<br>date | On time<br>Yes No                                 | End<br>Date | On time<br>Yes No                                 | Achievement<br>indicator | Target<br>benchmark | Actual<br>benchmark | Evidence | Comments and<br>recommendations |
|------------|---------|---------------|---------------------------------------------------|-------------|---------------------------------------------------|--------------------------|---------------------|---------------------|----------|---------------------------------|
|            |         |               | <input type="checkbox"/> <input type="checkbox"/> |             | <input type="checkbox"/> <input type="checkbox"/> |                          |                     |                     |          |                                 |
|            |         |               | <input type="checkbox"/> <input type="checkbox"/> |             | <input type="checkbox"/> <input type="checkbox"/> |                          |                     |                     |          |                                 |
|            |         |               |                                                   |             |                                                   |                          |                     |                     |          |                                 |