



# MATHEMATICS STUDY PROGRAM PROFILE

Faculty of Mathematics and Natural Sciences  
Udayana University

<b>Study Program Status</b>	Active
<b>Level</b>	Undergraduate
<b>Institution</b>	Udayana University
<b>Study Program Code</b>	44201
<b>Study Program Name</b>	Mathematics
<b>Date of Establishment</b>	31 August 2001
<b>Decree Letter Permit</b>	2843/D/T/2001
<b>Decree Date</b>	31 August 2001
<b>Lecturers and Students Ratio</b>	1 : 19
<b>Address</b>	Udayana University Bukit Jimbaran Campus, Badung, Bali
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<b>Degree</b>	Bachelor of Science (B.Sc.) will be replaced by Bachelor of Mathematics (based on Annex 1 of Decree of Ministry of Research, Technology and Higher Education Number 257/M/KPT/2017)
<b>Description</b>	The mathematics study program of Udayana University operating licence is based on decree letter of Directorate General of Higher Education Number 2843/D/T/2001 dated 31 August 2001. The study

program was officially inaugurated its first year student (academic year 2001/2002) on 17 September 2001 (which was two weeks delayed from the university calendar). To fully operate the study program needs to extend the licence. The licence extension is based on Directorate General of Higher Education Decree Number 108/DIKTI/Kep/2001 which was extended in 2003/2004 academic year. This extension was only valid for two year. The next extension is based on Directorate General of Higher Education decree number 898/DT/2007 on 20 April 2007. This decree is important in that it serves as a prerequisite of accreditation. The decree of The National Board for Higher Education Accreditation (BAN-PT) of the Republic of Indonesia decree number 019/BAN-PT/Ak-XI/S1/VIII/2008 dated 24 August 2008 stated that the mathematics study program of the Udayana University Denpasar accredited with grade B. For the next period the National Board for Higher Education Accreditation decree number 217SK/BAN-PT/Ak-XVI/S/X/ 2013 dated 26 October 2013 stated that the mathematics study program accredited with grade B. This accreditation grade valid from 26 October 2013 to 26 October 2018. The same grade was obtained in the 2018 accreditation. This grade is valid for five years.

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**Vision**

To become a study program that can produce human resources that are excellent, self-reliance, and culture-oriented in fields of mathematics and its applications.

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**Mission**

1. To conduct quality mathematics education that meets both regional and national demand;
  2. To conduct research in mathematics and its applications that meets demand and development of science, technology, and arts;
  3. To disseminate mathematics through community services.
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**Study Program Competences**

The Mathematics Study Program, Faculty of Mathematics and Natural Sciences, Udayana University emphasizes on mastery of the following main competences:

1. mastering fundamental mathematics within areas of mathematical computation, applied mathematics that concentrate on financial mathematics, and statistics;
2. capable of implementing mathematics and its applications in academic world;
3. capable of implementing mathematics and its applications
4. /capable of thinking analytically, critically, logically, and systematically and culturally oriented as the bases/foundation for decision making both in workplace and in society.

In order to support the main competencies of graduates, the mathematics study program develops supporting competencies as follows:

1. behave as a learner and to take responsibility in developing his/her expertise;
2. able to communicate in English sufficiently and to master information technology;
3. able to solve problems in mathematics and its applications in business world and community
4. have a commitment to alma mater and to uphold norms as alumni;

Other competences developed by mathematics study program are as follows:

1. mastery of the field of financial mathematics and its applications in insurance, economics, and business.
2. mastery of the field of statistics and its applications in medical science, industry, banking, tourism, and environment;
3. mastery of the field of mathematical computation and its applications in solving problems that require the use of computer.

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### **Learning Outcome**

Graduate profiles for Bachelor of Mathematics of mathematics study program at Udayana University are to acquire knowledge, skills and expertise in mathematics and mathematics-related and to pursue career as:

- a. Academician
- b. Assistant researcher
- c. Consultant
- d. Practitioner in industry, service, and government

Learning outcomes are described as follows:

### **Behaviour Attributes (BA)**

- a. devoted to God and able to show religious behaviour (BA1);
- b. uphold humanity values when carried out duty based on religion, moral, and ethics (BA2);
- c. contribute to the improvement of the quality of social life, national life, state life, and advancement of civilization based on Pancasila (BA3);
- d. serve as citizens that proud and love the motherland, have nationalism and responsibility to both country and nation (BA4)
- e. respect diversity of culture, views, religions and beliefs and opinion or original discovery of others (BA5).

- f. cooperate and have social sensitivity and care to both society and environment (BA6);
- g. obey the law and discipline in social life and state life; (BA7).
- h. internalize values, norms, and academic ethics (BA8).
- i. show responsibility for his/her field of expertise independently (BA9) and;
- j. internalize the spirits of independence, survivorship, and entrepreneurship (BA10)

### **General Skills (GS)**

- a. able to apply logical, critical, systematic, and innovative thinking within the context of developing or implementing science and technology that consider and apply humanity values that match his/her expertise (GS1);
- b. able to show independent work, quality, and measurable (GS2);
- c. able to study implication of development or implementation of science and technology that consider and apply humanities value that match his/her expertise based on scientific method, scientific ethics and rules in order to develop solutions, ideas, designs, or arts critic, writing scientific description of his/her study in the form of undergraduate thesis or final reports and uploading it in the university website;
- d. able to write scientific description of the above study in form of undergraduate thesis or final assignment, and upload it in university webpage;
- e. able to make decision accurately within the context of solving problems in his/her expertise, based on results of information analysis and data (GS5)
- f. able to maintain and extend networks with supervisor, colleagues, peers both inside or outside institution; (GS6)
- g. responsible on teamwork result and doing supervision and evaluation on finishing work that is delegated to the subordinate under his/her responsibility (GS7);
- h. able to do self evaluation on groups of work under his/her responsibility and able to organize learning independently (GS8)
- i. able to document, store, secure, and restore data to ensure validity and prevent plagiarism. (GS9)

### **Kemampuan Kerja (KK)//Work Ability (WA)?**

- a. able to develop mathematical thinking from procedural understanding/computation to wide understanding that include exploration, logical thinking, generalization, abstraction, and formal proof (WA1);
- b. able to observe, recognize, formulate and solve problems through

- mathematical approach with or without software (WA2);
- c. able to reconstruct, modify, analyze/think in structured manner about mathematical problem from a phenomenon, study its accuracy and implement and communicate it orally or in written precisely and clearly (WA3);
- d. able to use alternative readily available mathematical problem solving either individually or in groups for correct decision making (WA4);
- e. able to adapt and develop himself/herself in the field of mathematics and other relevant fields (including real workplace) (WA5);

### **Knowledge Mastery (MS)**

- a. mastering theoretical mathematical concepts such as mathematical logic, discrete mathematics, algebra, analysis and geometry, and probability and statistics; (MS1)
- b. mastering mathematical modelling principles, linear programming, differential equations, and numerical methods (MS2).