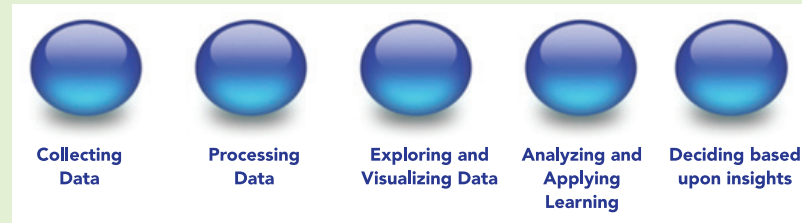


visualization, software engineering, research design, data ethics, and user experience. Depending on the course, students can expect an emphasis on Python and R programming and some assignments in Java. Many of the courses will emphasize team-based data analysis and engineering work and will involve working in small groups to complete one or more guided practicum projects per quarter. The final two quarters include a Capstone project where students get to solve a real-world challenge facing an external organization.



Duration and Nature of Course

MDS is full time, of 4 semesters (2 years) in duration with total 60 credits. This program basically comprises of some compulsory foundational courses consisting of fundamentals of Mathematics, Statistics, and Computer Science and Information Technology plus some elective courses from a list of courses which may vary from year to year as a multi-exit model decided by the subject committee.

Nature of course: Theory, Practical, Project, Seminar, Intern, Thesis.

Evaluation System

- a) 40% internal evaluation and 60% semester end exam. Internal exams are based on: Attendance/Assignment work/Oral test/Class test/Presentation/Class seminar / Project work/ Term exam etc. End semester exam is conducted by School in permission of exam board of TU.
- b) Evaluation of project or thesis: Research / project monitoring by supervisor; Pre viva by the school after submission; Evaluation of thesis by the Research Committee of the School with consent of the supervisor and the external.
- c) In each of the semester Exam and Internal Assessment, the student must secure at least 50% in order to complete the course.

Eligibility

Students applying to the program are expected to have a Bachelor's Degree with a strong quantitative and computational background including coursework in calculus, linear algebra and introductory statistics. So students with B Sc CSIT, B Math Sc, B Sc. (Math), B Sc (Stat), B Sc/BA with Math / Stat in the first 2 years, BE, BIT, BCA (with two Math and one Stat).

Data Science Careers

A successful business relies on quick decisions to stay competitive, and most likely big data analytics is involved in making that business tick. Data science careers are growing in virtually every sector: manufacturing, construction, transportation, warehousing, communication, science, health care, computer science, information technology, retail, sales, marketing, finance, insurance, education, government, security, and more. Additional job titles related to data scientist include: Data Analyst, Database administrator, Big data engineer, Data mining engineer, Machine learning engineer, Data architect, Hadoop engineer, Data warehouse architect, Commercial intelligence manager, Competitive intelligence analyst, Consultant, strategic business and technology intelligence, Manager of market intelligence and many more.

Message From Dean

Realizing the importance of human resources having both knowledge and skills of mathematics, statistics and computer science, the School of Mathematical Sciences (SMS) is established in the year 2016. This is the first school of this kind in Tribhuvan University under Institute of Science and Technology. Through the courses offered by this school an effort is made to produce graduates having skills of analytical ability, data processing capability and fast computing efficiency as required to the Modern World. SMSTU has designed the academic programs with the needs of employers in mind, to give the students a solid foundation from which they may take their career in any direction.



Prof. Dr. Binil Aryal
Dean, Institute of Science and Technology
Tribhuvan University

As the Dean of IOST and Chairperson of the Governing Board of the School, I warmly invite you to take the time to visit school's website or come to school for a visit.
Thank You.

Message From Director

For the first time, SMS TU has launched B. Math. Sc. (Actuarial Science) . It is a program of eight semesters (four year), first four semesters of the program provides foundations on a broad range of concepts on Mathematics, Statistics and Computer Science. In the remaining four semesters of the program that start from the fifth semester, students start studying Actuarial Science as a major subject. From the year 2020, SMS is planning to launch Master in Data Science (MDS) program of four semesters (two year) and is considered to be a versatile field that has found applications in information technology and industry, including health-care, banking, e-commerce, business, finance and consultancy services.



Prof. Dr. Narayan Prasad Pahari
Director, School of Mathematical Sciences
Tribhuvan University

We take students from a wide variety of educational backgrounds and we work hard to give everyone the opportunity to shine yourself. We encourage bold, independent thinking and offer the highest quality academic experience to stretch and challenge yourself. At SMS TU, you will find Mathematics as a fascinating, beautiful, and diverse subject to study. It underpins a wide range of disciplines, from the Physical Sciences to Social Science; from Biology to Business and Finance. Finally, as the executive director of the school, I look forward to welcome you all to our school or to visit school's website.
Thank You.

For Details Contact:

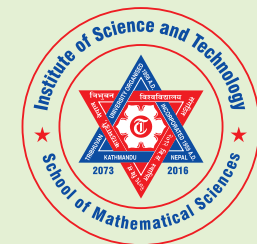
Tribhuvan University
Institute of Science and Technology

School of Mathematical Sciences

Balkhu, Kathmandu, Nepal
Phone : 01-6200207,9851053729
Website : www.smstu.edu.np



Start your academic journey in the world of Actuarial Science & Data Science



Tribhuvan University
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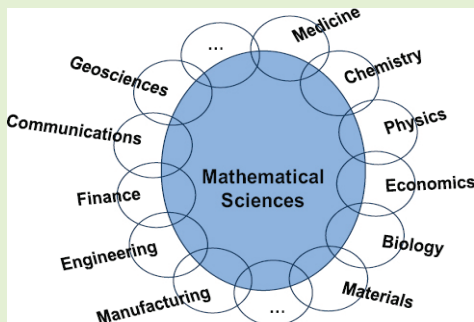
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**Welcome to the School of Mathematical Sciences
Institute of Science and Technology
Tribhuvan University**

About the School

The modern computerized world demands the human resource having all the three attributes: Analytical ability, data processing capability, and fast computing efficiency. Taking this as a challenge, Tribhuvan University has taken up a pioneering step by deciding to run Bachelor's and Master's Degree Programs in Mathematical Sciences (B.Math. Sc. and M. Math. Sc.) that will help to produce a critical mass of experts with sound knowledge of fundamentals of Mathematics, Statistics and Data Analysis, and Computer Science. To run these programs, Tribhuvan University established the School of Mathematical Sciences (SMS TU) in 2016.



- Courses Offered:**
- B. Math. Sc. (Actuarial Science)
 - Master's in Data Science (MDS)
 - Master's in Mathematical Sciences
(Major in Actuarial Science) (Proposed)

Our Mission

The School of Mathematical Sciences, Tribhuvan University (SMS TU), is dedicated to support the students not only knowing and understanding the modern world but also making them able to combine the development of knowledge and practical skills in solving real-world problems encountered in various disciplines of education. SMS TU provides an open, caring and multi-cultural learning environment built on the core values of integrity, responsibility and dignity.

Our Vision

SMS TU share the vision of developing our intellectually vigorous community of students and faculty, together engaging in research, teaching, and learning that advance knowledge in diverse areas of mathematics and support current progress in science. It is established to provide students with extensive and diverse knowledge in the Mathematical Sciences, i.e. a unique interdisciplinary learning environment for high-quality education and research through a blending of the three disciplines: mathematics, statistics, and computer science, and thrives to become a center of excellence.

Actuarial Science and its Global Scope

Actuarial Science is the discipline that applies mathematical and statistical methods to assess risk in insurance, finance, and other industries and professions. Actuaries are expected to have a detailed understanding of economic, financial, demographic, insurance risks; and possess expertise in developing & using statistical & financial models to inform financial decisions. The role that an actuary can

perform in each of these sectors can be quite varied, such as product pricing, financial modelling, valuations, risk management, carrying out peer reviews, designing social security schemes, advise on the premium to be charged etc.

Career Opportunities:

A career of Actuaries involves applications of mathematical and statistical knowledge and skill in risk assessment, and evaluation of financial products such as insurance and investment. An actuary can work in the following fields:

- ❖ Life Insurance
- ❖ Health Insurance
- ❖ Investments
- ❖ Risk Management.
- ❖ General Insurance
- ❖ Pension Funds
- ❖ Government
- ❖ Reinsurance Companies
- ❖ Consultants
- ❖ Academics



Scopes of Actuarial Science in Nepal

The field of actuarial science in Nepal is gradually gaining popularity and recognition. The last few years have seen significant activities in the Nepalese insurance sector. Both life and general insurers have upped their market presence and the penetration rate of insurance has been growing, most notably after the devastating earthquake of 2015. There are altogether 40 insurance companies (19 Life Insurance, 20 Non-Life Insurance and 1 Re-Insurance) operating in Nepal. A large portion (about 90 percent) of Nepal's population does not have access to insurance services which has created a lucrative market for insurers. Nevertheless, insurance companies are struggling hard to get qualified human resources to make an aggressive movement in the domestic market. One reason for the low qualified workforce is the lack of university-level courses of insurance in the country. For example, the absence of a course on actuarial science has resulted in a severe of actuaries for the insurance companies. There are no actuaries in the country and insurance companies are required to pay high remuneration for foreign actuaries to carry out the actuarial works.



**Bachelor's in Mathematical Sciences (B. Math. Sc.)
(Actuarial Science) – Program Information**

For the first time, SMS TU has launched B. Math. Sc. (Actuarial Science). The first two years of B.Math.Sc. program provides a foundation and a broad range of areas including Mathematics, Statistics, and Computer

Science. In the remaining two years of the program that starts from the fifth semester, students start studying Actuarial Science as a major subject. This Actuarial Science Courses is similar to the core courses on which the Institute and Faculty of Actuaries (IFOA), UK has been conducting the professional examinations and may play an important role in the growth and development of the Nepalese insurance and banking sectors.

- **Evaluation system**
Semester Examination -60% and Internal Assessment - 40%
- **Eligibility**
A candidate who has passed grade 12 from any stream (Science/Management/Education/Arts) with one of the subjects being Mathematics of 100 marks or Business mathematics or equivalent in 11/12 grade is eligible to get admission through entrance examination.
- **Intake : 36**
- **Scholarship**
Scholarships will be awarded to 10 % students according to T.U. rule.
- **Career Opportunities**
If there is one field where career prospects are abundant, it is Actuarial Science, because the demand exceeds supply in most parts of the world.
The course is globally recognized with mutual exemptions with a lot of other international actuarial institutes. Traditionally, actuaries were found only in the life insurance sector. However, with the opening up of the economy they are wanted by general insurance, health insurance, reinsurance companies, pensions and employee benefits, investment consultancies, risk management, banks, stock exchanges, private and government agencies.
- **Significance of the Program**
The course is globally recognized with mutual exemptions with a lot of other international actuarial institutes. In Nepal, there are no actuaries. All the actuarial jobs are serviced from India. The job of the actuary has been ranked in every edition of the Wall Street Journal's Jobs Rated Almanac as a top three profession (out of 200) in the United States. In the 2015 edition, actuary was ranked the number one career. See <http://www.careercast.com/jobs-rated/jobs-rated-report-2015-ranking-to-p-200-jobs>. when ranking professions, the almanac considers factors such as salary, hiring outlook, stress, and work environment.
- **Do some research on actuarial career yourself**
www.beanactuary.org, www.actuariesindia.org, www.actuaries.org.uk, www.actuaries.asn.au, www.soa.org, www.casact.org

Master's in Data Science (MDS) - Program Information

Data Science program is a multi-disciplinary subject that encompasses the use of mathematics, statistics, and computer science to study and evaluate data. By considering the importance and value of data science, the School of Mathematical Sciences, Institute of Science and Technology Tribhuvan University is planning to run a Master's in Data Science (MDS) Program from the forthcoming academic year 2077/2078. Master in Data Science(MDS) curriculum is designed to provide the breadth and depth of knowledge needed for a successful career in data science. It emphasizes practical proficiency in applying the relevant skills through courses in statistical modeling, data management, machine learning, data