After STAT 2000 …

UNIVERSITY
OF MANITOBA

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• **information for prospective statisticians and students who want to take further courses in statistics** •

What is your next step?

You have completed STAT 2000 and have discovered that statistics is interesting and useful. You now want to take further courses in statistics, or possibly become a statistician! So, what courses should you take? Here are some options for your next course:

If you are interested in entering an honours or major program in statistics, then you should take **STAT 2400 (Introduction to Probability I)**, if you have not already done so. This course introduces the basic concepts of discrete probability and provides a solid foundation for further courses in mathematical statistics. Applications of probability in many areas are provided, including forensic science, games of chance, genetics, reliability and statistical inference. The prerequisites for STAT 2400 are a grade of C or better in STAT 1000 and in one of MATH 1700 or MATH 1690. STAT 2400 is a required course in any honours or major program in statistics. More details are provided on the reverse. In 2011–2012, STAT 2400 is in slot 2 in both terms and also in summer session.

Without taking STAT 2400, you can also take a number of applied statistics courses: STAT 3000 (Applied Linear Statistical Models), STAT 3170 (Statistical Quality Control) and STAT 3380 (An Introduction to Nonparametric Statistics). The only requirement to take these courses is a grade of C or better in STAT 2000.

Is statistics for you?

Being a statistician is challenging. In addition to having knowledge of statistical methods and concepts, you need to have skills in mathematics and critical thinking and you need to be able to communicate effectively.

However, being a statistician can also be exciting and rewarding. You get to work with researchers in many disciplines on important problems in the natural, physical and social sciences.

If you have a lively interest in many different areas, like the idea of working cooperatively with scientists in other fields, are able to step back to see the whole picture and find the idea of understanding the story behind the numbers appealing, then statistics may be for you!

What do statisticians do?

Statisticians contribute to scientific inquiry by applying their mathematical and statistical expertise to the design of surveys and experiments; to the collection, processing, and analysis of data; and to the interpretation of the results.[1] They may apply their knowledge of statistical methods to a variety of subject areas including

- agriculture
- biological sciences such as genetics, botany, zoology and ecology
- economics
- engineering
- environmental science
- forensic science
- marketing
- medicine
- psychology
- public health
- sports
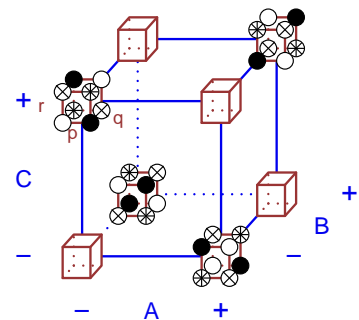
Many environmental, financial, industrial, medical and political decisions cannot be made without the use of statistical techniques, such as the design and analysis of clinical trials to gain government approval for a new drug.
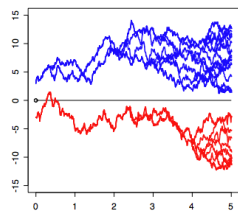
Undergraduate programs in statistics

Four-year honours program. This is an intensive, systematic program of study in statistics. It is the best preparation for post-graduate study and leads to entry level positions as statisticians.

Joint honours programs. These programs offer intensive studies not only in statistics but also in other related fields. Currently, the Department offers joint honours programs with actuarial science, economics and mathematics.

Four-year major program. This program gives a more flexible but less intensive exposure to the subject of statistics. Graduates would be able to enter the workforce in junior positions.

Graduate programs in statistics

In addition to undergraduate degrees, the Department offers graduate degrees at both the M.Sc. and Ph.D. levels. These degrees involve comprehensive study at an advanced level. Graduates of the Master's program are qualified to work as statisticians in many areas. The Ph.D. degree is the basic requirement for teaching and research at the university level and for senior statistical positions.

Accreditation of courses

The Statistical Society of Canada has accredited most of the 3000-level and 4000-level statistical courses as being available for partial fulfillment of the requirements for the Associate Statistician (A.Stat.) designation.

For further information

Please contact: Department Head, Department of Statistics, 340 Machray Hall, 474-8172.

> ***Note:*** *This information sheet and the course map are intended to help you to decide on courses and programs. However, they are not intended to provide all of the regulations pertaining to course and program requirements. In the event of inconsistencies between the information provided here and in the University's Calendar, the Calendar shall prevail. The effective date of information herein is February, 2011.*

[1] American Statistical Association

Statistics Course Map: The following diagram is for illustrative purposes only and does not include all degree requirements. Solid arrows indicate prerequisites; dashed arrows indicate pre- or corequisites. Some alternate prerequisites (such as MATH 1690 in place of MATH 1500 & MATH 1700) have been omitted for the sake of clarity. Please refer to the official *University Calendar* for detailed program requirements, course descriptions, prerequisites and guidelines. The dark boxes indicate some of the courses that are required in the Statistics Honours Program.