Undergraduate Statistics at SIU. One of the fastest growing undergraduate degrees in the Mathematical Sciences is the degree in Statistics. According to Sept. 2014 *Amstat News*, about 129 universities grant a Bachelor's degree in Statistics. The number of degrees given at the University of Illinois increased from 30 in 2011 to 67 in 2013. The University of Minnesota's Fall 2014 newsletter reported that "Five years ago we had about 50 undergraduate majors, last year at this time we had 150 majors and we now have over 200!"

Freshmen admitted to the Statistics program should have at least a 24 Math ACT score. Students can also enroll as Math majors and transfer to the Statistics program after receiving a C or higher in Math 250.

Statistics is the science of extracting useful information from data, and has been used to greatly increase agricultural production (experimental design), and to greatly improve manufactured goods (six sigma quality control). Biostatisticians work with doctors to greatly improve medical practice (clinical trials).

There are tracts for A) employment and B) preparation for graduate school. According to the American Statistical Association (ASA) website (http://thisisstatistics.org/students/#icons), the median salary for data scientists (essentially statisticians with good computing skills) with less than three years of experience is $80,000. In 2014, Biostatistics departments hired assistant professors for about an average of $95,000. According to (http://sas.stat.fsu.edu/sas-ug.html) in 2012 the starting annual salary for a SAS programmer was between $45,000 and $60,000.

To get a job with a B.S. degree, students need to know SAS programming. Consider getting SAS certified.

Tracts:

A) Employment

Tracts I)-III) need familiarity with SAS programming.

I) Statistics for Industry/Manufacturing/Engineering Jobs

II) Statistics for Business and Management Jobs

III) Statistics for Government Jobs

B) Preparation for Graduate School

IV) Statistics

V) Biostatistics

There is also an undergraduate Actuarial Program at SIU that uses a lot of Statistics.

Certain tracts need different electives. In the sample program below, Math 486 is not yet in the catalog, so replace it with another 300 or 400 level math course.

University Core Curriculum Requirements.....42

College of Science Academic Requirements.....12

Biological Sciences 6 hours

Mathematics: completed with Statistics Major

Physical Sciences 6 hours

Supportive Skills: a two semester sequence in a foreign language, or three hours of one foreign language in high school with no grade lower than C

Requirements for Major in Statistics.....49

Computer Science 202 or approved substitute.....4

Mathematics 150, 221, 250, 251.....14

Mathematics 302, 319, 352.....9

Mathematics 305 or 475.....3

Mathematics (Stat) 483, 473, 474, 484, 485, 486.....19

Electives.....16

Total.....120

Electives:

Statistics Courses: Seniors may consider taking graduate level courses. Applied courses are useful for all tracts: Math 583-3 (up to 4 times) Advanced Topics in Statistics, MATH 585-3 Multivariate Analysis, MATH 586-3 Statistical Computing and Learning.

Theoretical courses are useful preparation for graduate Statistics: Math 580-3 Statistical Theory, MATH 584-3 Linear Models.

Actuarial Mathematics: Math 400-4 Interest Theory and Financial Derivatives, Math 401-3 Life Contingencies I, Math 402-3 Life Contingencies II, Math 403-3 Loss Models I, Math 404-3 Loss Models II. The Loss Models courses are Statistics for Actuarial Sciences.

Additional electives for the different tracts:

Students interested in Data Science should take more CS courses and Math 475.

Human Health = BIOL 202, Math 300I counts as a humanities elective.

I) Statistics for Industry/Manufacturing/Engineering Jobs

Quality control courses (such as IT 470A, IT 475 or TRM-383, TRM-483) from Industrial Technology or Technology Resource Management.

II) Statistics for Business and Management Jobs

Math 585-3 multivariate analysis, quality control (such as IT 470A).

III) Statistics for Government Jobs

Math 585-3 multivariate analysis

IV) Preparation for Graduate School: Statistics

Math 452-3 Introduction to Analysis, Math 580, 583-586.

V) Preparation for Graduate School: **Biostatistics**

CHEM 200, 201, PLB 115 = ZOOL 115, BIOL 202, ANTH 240A (human biology), PHSL 201, 208 (human physiology). **Consider a minor in Biology or Physiology.**

Math 452-3 Introduction to Analysis, Math 580, 583-586.

Sample program.

FIRST YEAR	FALL	SPRING
MATH 150, MATH 250	4	4
ENGL 101, ENGL 102	3	3
CMST 101, CS202	3	4
UCOL 101, Human Health	1	2
Social Science, Humanities	3	3
Total	14	16

SECOND YEAR	FALL	SPRING
MATH 221, multicultural	3	3
MATH 251, MATH 483	3	4
Social Science, Math 302	3	3
Fine Arts, elective	3	3
Approved Physical Science	4	
elective		3
Total	16	16

THIRD YEAR	FALL	SPRING
Math 319, Math 352	3	3
MATH 484, MATH 473	3	3
Math 300i, Approved Physical Science	3	3
Approved Biological Science	4	
elective, elective	3	3
Total	16	12

FOURTH YEAR	FALL	SPRING
Math 474, Math 485	3	3
MATH 305 or 475, elective	3	3
elective, MATH 486	3	3
English Comp III or For. Lang.		3
Approved Biological Science	3	
elective, elective	3	3
Total	15	15