

<b>Fiscal Unit/Academic Org</b>	Statistics - D0694
<b>Administering College/Academic Group</b>	Arts And Sciences
<b>Co-administering College/Academic Group</b>	
<b>Semester Conversion Designation</b>	Converted with minimal changes to program goals and/or curricular requirements (e.g., sub-plan/specialization name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content)
<b>Current Program/Plan Name</b>	Statistics & Statistical Data Analysis Minor
<b>Proposed Program/Plan Name</b>	Statistics Graduate Minor
<b>Program/Plan Code Abbreviation</b>	STATDAN-GM
<b>Current Degree Title</b>	

## Credit Hour Explanation

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program		20	13.3	14	0.7
Required credit hours offered by the unit	Minimum	20	13.3	14	0.7
	Maximum	23	15.3	14	0.7
Required credit hours offered outside of the unit	Minimum	0	0.0	0	0.0
	Maximum	0	0.0	0	0.0
Required prerequisite credit hours not included above	Minimum	0	0.0	0	0.0
	Maximum	8	5.3	8	0.0

## Program Learning Goals

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

### Program Learning Goals

## Assessment

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? No

## Program Specializations/Sub-Plans

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

## Pre-Major

Does this Program have a Pre-Major? No

**Attachments**

- Grad Minor Stat Attachments.pdf: Documents from Department of Statistics

*(Program Proposal. Owner: Craigmile, Peter F)*

**Comments****Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Craigmile, Peter F	10/29/2010 09:35 AM	Submitted for Approval
Approved	Craigmile, Peter F	10/29/2010 09:36 AM	Unit Approval
Pending Approval	Andereck, Claude David	10/29/2010 09:36 AM	College Approval



**Department of Statistics**

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28 October 2010

To: Office of Academic Affairs

Re: Proposed Graduate Minor in Statistics degree program

Please find attached our proposal for the **Graduate Minor in Statistics** degree program under semesters. The ad-hoc graduate service course conversion committee put this proposal together, with continual feedback from the entire faculty. It was approved unanimously in a faculty meeting on 18 May 2010.

Sincerely,

A handwritten signature in cursive script that reads "Douglas A. Wolfe".

Douglas A. Wolfe,  
Chair, Department of Statistics.

## **Proposed Graduate Minor in Statistics Program**

### **Rationale for Changes**

The changes to the minor program can be summarized as follows:

1. The requirement of the two theory courses, Stat 610 and Stat 623, has been replaced by a re-envisioned, one-semester theory course, Stat 6201, tailored to graduate students who want to take a minor.
2. Design and Analysis of Experiments (Stat 6410) and Applied Regression (Stat 6450) are now mandatory under this program. Both courses provide graduate minor students with a solid, essential foundation in statistical modeling.
3. The list of electives has been updated to reflect the list of possible courses that will be available under semesters.

**Proposed Graduate Minor in Statistics Program  
List of Semester courses**

**Math prerequisite**

Code	Under Semesters		Under Quarters		Notes
	Credits	Title	Code	Credits	
Math 2253.XX	5 or 4	Calculus 3	254	5	For Stat 6201
Math 2568.01	3	Linear Algebra for Math Majors	568/571	3	For Stat 6450

**Core Required Courses**

Code	Under Semesters		Under Quarters		Notes
	Credits	Title	Code	Credits	
6201	4	Mathematical Statistics	520/521	5+5	Re-envisioned as single semester 4 credit hour course
6410	4	Design and Analysis of Experiments	641	5	Converted, with material added
6450	4	Applied Regression Analysis	645	5	Converted, with material added

NOTE: 6301 (4) and 6302 (4) may be used to replace 6201 (4) but will be only counted for 4 credits in the degree.

**Elective Courses (at least two credits of the following)**

Code	Under Semesters		Under Quarters		Notes
	Credits	Title	Code	Credits	
6510	3	Survey Sampling Methods	651	4	Material added
6520	3	Applied Statistical Analysis with Missing Data	652	4	Material added
6530	2	Introduction to Spatial Statistics	631	3	Straight conversion
6540	3	Applied Stochastic Processes	632	3	Material added
6550	2	Statistical Analysis of Time Series	635	3	Straight conversion
6560	3	Applied Multivariate Analysis	656	5	Straight conversion
6570	2	Applied Bayesian Analysis	625	4	Converted to a two semester hour required course for MAS/PhD - material removed
6605	3	Applied Survival Analysis	BIOSTAT 605	5	Straight conversion
6610	3	Applied Nonparametric Statistics	661	5	Straight conversion
6615	2	Design and Analysis of Clinical Trials	BIOSTAT 615	3	Straight conversion
6620	2	Environmental Statistics	662	3	Straight conversion
6640	3	Principles of Statistical Quality Control	664	5	Straight conversion
6650	2	Discrete Data Analysis	665	5	Converted to a two semester hour required course for MAS degree - material removed
6690	1-5	Graduate topics in Statistics			New general topics course
6730	2	Introduction to Computational Statistics	673	3	Straight conversion





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## Graduate Minor Program Form

Student Name: \_\_\_\_\_

Ohio State Email Address: \_\_\_\_\_

Name of Graduate Minor: \_\_\_\_\_

### Graduate Minor Program of Study

<u>Department</u>	<u>Course #</u>	<u>Course Title</u>	<u>Credit Hours</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

\_\_\_\_\_  
Student Signature Date

\_\_\_\_\_  
Advisor Signature Date

\_\_\_\_\_  
Graduate Studies Chair in Graduate Minor Program Date

## Proposed Graduate Minor in Statistics Program

### Transition Policy

Stat 6201 replaces, under semesters, the requirement of Stat 610 and Stat 623 under quarters. If a student already has credit for Stat 610, but not for Stat 623, then it is recommended that the student take Stat 6302 (The straight conversion of Stat 623). This will fulfill the Stat 6201 requirement. Also, the new Stat 6301-6302 sequence will be an acceptable alternative to 6201, but will only count for 4 semester hours toward the fulfillment of the requirements for the minor.

Stat 641 under quarters will be counted for Stat 6410 under semesters, and Stat 645 under quarters will be counted for Stat 6450 under semesters. Similarly 600 level quarter-based elective courses can be counted with a 2/3 conversion to 6000 level elective credits under semesters.

#### An example transition:

##### Year 1 (Quarters)

Au	Wi	Sp
Stat 610 (5)	Stat 623 (5)	Stat 641 (5)

##### Year 2 (Semesters)

Au	Sp
Stat 6450 (4)	Elective (2 or 3)



# Graduate Minor in Statistics

**Prerequisites:** College-level Linear Algebra (Math 2568.01) and Calculus (Math 2253.XX)

**Required courses** (credit hours in parentheses):

- Stat 6201 (4) Introduction to Probability and Mathematical Statistics
- Stat 6410 (4) Design and Analysis of Experiments
- Stat 6450 (4) Applied Regression Analysis

(The Stat 6301-6302 sequence will be an acceptable alternative to 6201, but will only count for 4 semester hours toward the fulfillment of the requirements for the minor.)

**Elective courses:**

At least 2 additional credit hours at the 6000-level from among the courses listed below. Higher level courses can be substituted as an alternative with appropriate permission.

**Tentative Calendar:**

	Fall	Spring
Year 1	Stat 6201 (4)	Stat 6410 (4)
Year 2	Stat 6450 (4)	Elective (2 or 3)

**Elective courses:**

- 6510 (3) Survey Sampling Methods
- 6520 (3) Applied Statistical Analysis with Missing Data
- 6530 (2) Introduction to Spatial Statistics
- 6540 (3) Applied Stochastic Processes
- 6550 (2) Statistical Analysis of Time Series
- 6560 (3) Applied Multivariate Analysis
- 6570 (2) Applied Bayesian Analysis
- 6605 (3) Applied Survival Analysis
- 6610 (3) Applied Nonparametric Statistics
- 6615 (2) Design and Analysis of Clinical Trials
- 6620 (2) Environmental Statistics
- 6640 (3) Principles of Statistical Quality Control
- 6650 (2) Discrete Data Analysis
- 6690 (1-5) Graduate topics in Statistics
- 6730 (2) Introduction to Computational Statistics

## **GRADUATE MINOR DEGREES (UNDER QUARTERS)**

The Department of Statistics offers two graduate minor degrees. Official recognition of the completion of either of these minor degrees will appear on the student's University transcript. The first minor is a Graduate Minor in Statistics. This is a twenty hour minor degree which includes a theoretical component in addition to applied coursework. Students must have a good calculus background in order to complete this minor degree. The second minor is a Graduate Minor in Statistical Data Analysis. This is an eighteen hour minor degree and all coursework for this minor is applied. The Minor in Statistical Data Analysis does not require any formal mathematics beyond the ability to work with simple formulas and equations, material ordinarily covered in a high school algebra course.

For those students interested in going beyond the minor degree, an additional thirty hours can be added to the Graduate Minor in Statistics to complete a Master of Applied Statistics degree.

Graduate Minor Program Coordinator: Professor Mike Fligner (maf@stat.osu.edu)

## **GRADUATE MINOR IN STATISTICS**

The Graduate Minor in Statistics includes a theoretical component and the theoretical sequence required is Stat 610 and Stat 623 (Stat 520 and Stat 521 will not be counted). It is recommended that this sequence be taken first as Stat 623 is a prerequisite for many of the elective courses. After the completion of Stat 623 students will have sufficient background to take the remaining electives for the minor. Any student interested in this minor should contact Professor Michael Fligner to help in planning their coursework in statistics and to answer any questions about the minor (phone 292-0463 or e-mail gradminor using the department address @stat.osu.edu).

The formal requirements and coursework for the minor follow.

**Requirements** The Graduate Minor in Statistics requires a minimum of 20 hours and a maximum of 23 hours of coursework from the Statistics Department. An exam can be provided on the coursework required for the Graduate Minor in Statistics if desired by the student's advisor, but the exam is not required to obtain the minor. The Graduate School requires that the student must receive the grade of B (or better) or S in each course comprising the minor.

### **Coursework**

Required courses: Stat 610, Stat 623 and at least one of Stat 641, Stat 645, Stat 656 and Stat 661.

Elective courses: At least 5 additional course credits at the 600 level or higher in Statistics or Biostatistics.

In addition to courses listed in the catalogs Biostatistics and Statistics , see New Courses for a list of the newest courses, not yet cataloged, that may be available as electives.

### **Optional Examination**

A minor examination covering the required coursework of Stat 610, Stat 623 and at least one of Stat 641, Stat 645, Stat 656 and Stat 661 will be given during approximately the sixth week of the autumn and spring quarters. This exam is not required by the Statistics Department to obtain the Graduate Minor, but is available at the request of the student's advisor.