Fiscal Unit/Academic Org	Statistics - D0694
Administering College/Academic Group	Arts And Sciences
Co-adminstering College/Academic Group	
Semester Conversion Designation	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)
Current Program/Plan Name	Statistics Minor
Proposed Program/Plan Name	Statistics Minor
Program/Plan Code Abbreviation	STAT-MN
Current Degree Title	

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		21	14.0	15	1.0
Required credit hours offered by the unit	Minimum	21	14.0	15	1.0
	Maximum	25	16.7	15	1.7
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	5	3.3	5	1.7
	Maximum	5	3.3	5	1.7

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

• Stat Undergraduate Minor Attachments.pdf: All attachments from the Department of Statistics

(Program Proposal. Owner: Craigmile,Peter F)

• Statistics Undergraduate Minor cover letter.doc: ASC NMS cover letter

(Letter from the College to OAA. Owner: Andereck,Claude David)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Craigmile,Peter F	10/29/2010 09:32 AM	Submitted for Approval
Approved	Craigmile,Peter F	10/29/2010 09:33 AM	Unit Approval
Revision Requested	Andereck,Claude David	11/03/2010 01:06 PM	College Approval
Submitted	Craigmile,Peter F	11/10/2010 11:32 PM	Submitted for Approval
Approved	Craigmile,Peter F	11/10/2010 11:33 PM	Unit Approval
Approved	Andereck,Claude David	11/11/2010 10:09 AM	College Approval
Pending Approval	Hanlin,Deborah Kay Vankeerbergen,Bernadette Chantal Meyers,Catherine Anne Jenkins,Mary Ellen Bigler Nolen,Dawn	11/11/2010 10:09 AM	ASCCAO Approval

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http://www.stat.osu.edu/

25 October 2010

To: Office of Academic Affairs

Re: Proposed Undergraduate Minor in Statistics degree program

Please find attached our proposal for the **Undergraduate Minor in Statistics** degree program under semesters. The ad-hoc undergraduate 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,

Douglas A. Wolfe,

Chair, Department of Statistics.

Proposed Undergraduate Minor in Statistics Program

Rationale for Changes

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

1. The Mathematical Statistics quarter courses 420 and 421 have been converted, with material added, to 4201 and 4202 under semesters. 420 and 421 are 5 quarter hour courses (4 lecture hours, 1 hour recitation per week). For the semester versions of the course 4201 and 202 will be 4 semester hour courses (3 lecture hours, 1 hour recitation). Recitations are an integral part of this course and have been retained. In 4201 we have added coverage of the sampling distribution of the mean in finite populations, as well as the chi-square, t and F distributions (all material needed for modern statistical analysis). We have also modernized 4202 adding material on Decision Theory, Regression Analysis and the Design and Analysis of Experiments, while condensing some of the earlier material in the course. The Actuarial Science major program in Department of Mathematics tentatively concurred with this proposal in February 2010.

2. The Data Analysis sequence of 528, 529, and 530 (3+3+4 hours) in the quarter is converted to 5301 and 5302 (4+3 hours) under semesters. 5301 will cover all the material from 528 and approximately half of the material from 529. Similarly, 5302 will cover the rest of 529 and the current 530 material. Previously, 528 as a prerequisite for 529 was not required in the minor program on the condition that students have done well in Stat 145, 245, or AP statistics course. Because of the proposed change in the coverage of 5301, we now list 5301 as part of the minor requirements.

3. The proposed changes to credit hours and coverage of the core required courses in the statistics minor program lead to a total of 15(=4+4+4+3) semester hours for the required courses, which exceeds the university minimum of 12 for minor programs. Therefore, the proposed statistics minor program no longer requires electives (previously were required for at least 4 hours). One exception: for students who have Math 5530H but not Stat 4201 four hours of electives are required.

Proposed Undergraduate Minor in Statistics Program
List of Semester courses

Core Required Courses

	Under Semesters			Under Quarters		
Code	**Credits**	**Title**	**Code**	**Credits**	**Notes**	
4201	4	Introduction to Mathematical Statistics I	420	5	Material added to course to modernize it	OR
Math 5530H	3	Rigorous Probability	531H			
4202	4	Introduction to Mathematical Statistics II	421	5	Material added to course to modernize it	
5301	4	Intermediate Data Analysis I	528/529	3+3	Merging of content of 528 and 529 -- 528 was not required in quarter version of degree	
5302	3	Intermediate Data Analysis II	529/530	3+4	Merging of content of 529 and 530	

Elective Courses (Not required unless Math 5530H is used as a replacement for Stat 4201)

	Under Semesters			Under Quarters		
Code	**Credits**	**Title**	**Code**	**Credits**	**Notes**	
5510	3	Statistical Foundations of Survey Research	551	5	Straight conversion	
5740	2	Introduction to SAS Software	574	3	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	
6650	2	Discrete Data Analysis	665	4	Converted to a two semester hour required course for MAS degree. Material has been removed	
6740	3	Data Management and Graphics for Statistical Analyses	674/675	2+2	Converted, with some material removed	

UNDERGRADUATE MINOR IN STATISTICS PLAN OF STUDY

Name: _____   Date: _____

Core Course Requirements:

	Grade or Semester Planned		Grade or Semester Planned
Statistics 4201	_____	OR Math 5530H*	_____
4202	_____		
5301	_____		
5302	_____		

*Math 5530H does not count for credit in the Statistics undergraduate minor. Students with credit for Math 5530H but not Stat 4201 must take 4 credit hours of approved Statistics electives.

Electives: (not usually required for the Minor in Statistics)

5000 and 6000 Level Elective	Credit Hrs	Grade or Semester Planned
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Having met on _____, the undersigned approve the listed program.

_____
        Student's Signature

Approved By: _____   Date: _____
        Undergraduate Minor Coordinator

The Ohio State University
Arts and Sciences
Minor Program Form

Name_____

Student ID#_____ Phone#_____

Local Address_____

E-Mail _____

Minor _____

This form should be submitted to your college or school office.

College/School of enrollment_____ Major_____

Expected date of graduation _____

Have you filed a degree application in your college office?   Yes ☐   No ☐

(*Please list below all courses taken to fulfill the minor*)

Course	**Credit Hrs**	**Final Grade**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total Hours_____   Original ☐   Revision ☐

_____
Signature of Faculty Advisor or College/School Counselor

_____
Please Print Name of Faculty Advisor or College/School Counselor

_____
Academic Unit   Campus phone and/or E-Mail

Arts and Sciences Curriculum and Assessment Office
4132 Smith Lab, 174 West 18th Ave
DKH 4/8/09

Proposed Undergraduate in Statistics Program
Transition Policy

Students who began their degree under quarters will not be penalized as the university moves to semesters, either in terms of progress towards their degree of their expected date of graduation.

We believe that the best solution for smooth transition is to proactively advise students in advance that they finish either of the core sequences (Mathematical Statistics, Stat 420-421, and Data Analysis, Stat 528-530) completely under quarters. Then by completing any unfinished sequences under semesters, they can fulfill all the requirements for the minor without taking any bridge courses.

For the Mathematical Statistics sequence (Stat 4201 and Stat 4202), we do not see a need for developing a bridge course. In the first two years under semesters the content of Stat 4202 will be slightly altered so that students taking Stat 420 can take Stat 4202 without problem.

For the Data Analysis 528-530 sequence, the material of the 3 credit second course (Stat 529) will be split into Stat 5301 (2 credits) and Stat 5302 (1 credit) under semesters. If needed, a 2 credit hour bridge course between 528 and 5302 (Stat 5299) will be offered during the first two years after transition to semesters. Those who take Stat 528 and Stat 529 under quarters can take Stat 5302 (the second semester course) to complete the requirement for the data analysis sequence.

Example transitions:

	Au	Wi	Sp
Year 1 (Quarters)	Stat 528 (3)	Stat 529 (3)	Stat 530 (3)
Year 2 (Semesters)	Stat 4201 (4)		Stat 4202 (4)

	Au	Wi	Sp
Year 1 (Quarters)	Stat 420 (5)	Stat 421 (5)	
Year 2 (Semesters)	Stat 5301 (4)		Stat 5302 (3)

	Au	Wi	Sp
Year 1 (Quarters)	Stat 420 (5)	Stat 421 (5) Stat 528 (3)	
Year 2 (Semesters)	Stat 5299 (2)		Stat 5302 (2)

Proposed Undergraduate Minor in Statistics Program

A demonstrated knowledge and working understanding of basic statistical techniques and methods has become a critical element for students in many disciplines including business, engineering, life sciences and social sciences. The undergraduate minor in statistics is designed as a valuable asset to enhance most undergraduate majors and their career opportunities. Students with a statistics minor may also be eligible to obtain a Master of Applied Statistics with one additional academic year of coursework.

Requirements

To achieve the statistics minor, the student must successfully complete the requirements listed in (1) and (2) below. The total number of semester credit hours required for the statistics minor is at least 15.

(1) Take and pass with a grade of C- or above in each of the required courses.

   Stat 4201 (4)   Introduction to Mathematical Statistics I

   Stat 4202 (4)   Introduction to Mathematical Statistics II

   Stat 5301 (4)   Intermediate Data Analysis I

   Stat 5302 (3)   Intermediate Data Analysis II

(2) Maintain a minimum cumulative grade point average of 2.00 in the statistics minor.

(3) Stat 4201 is not required for Math students with credit for Math 5530H (Rigorous Probability). However, Math 5530H cannot be counted for credit in the Statistics minor or as a GEC in Data Analysis. Students with Math 5530H but not Stat 4201 will have to take 4 semesters hours of electives (see next note for a list of possible electives).

(4) In addition to the required courses, it is recommended but not usually required that the student take one or more electives from such specialized courses as Statistical Foundations of Survey Research (5510), Introduction to SAS Software (5740), Applied Nonparametric Statistics (6610), Environmental Statistics (6620), Discrete Data Analysis (6650), Data Management and Presentation (6740), Design and Analysis of Clinical Trials (Stat 6615). Other electives may be selected with the approval of the Undergraduate Minor Coordinator.

Sample Programs

Sample Program 1:

	Fall	Spring
Year 1	5301	5302
Year 2	4201	4202

Sample Program 2:

	Fall	Spring
Year 1	4201	4202
Year 2	5301	5302

Department of Statistics

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Undergraduate Statistics Minor

A demonstrated knowledge and working understanding of basic statistical techniques and methods is a critical element in today's competitive marketplace. The undergraduate minor in statistics is designed as a valuable asset to enhance most any undergraduate major. Students with a statistics minor may also be eligible to obtain a Master of Applied Statistics (M.A.S.) with one additional academic year of coursework.

Statistics Undergraduate Minor Program Coordinator: Professor Mike Fligner (maf@stat.osu.edu (mailto:maf@stat.osu.edu))

Undergraduate Minor in Statistics Requirements

To achieve the statistics minor, the student must successfully complete the requirements listed in (1) and (2) below. The total number of credit hours required for the statistics minor is 21-25.

(1) Take and pass with a grade of C- or above:

Core Required Courses (17 Hours)

420 (5) Introduction to Mathematical Statistics I
421 (5) Introduction to Mathematical Statistics II
529 (3) Data Analysis II
530 (4) Data Analysis III

Electives (At least 4 Hours)

451 (5) Statistical Foundations of Survey Research
574 (3) Introduction to SAS
661 (5) Applied Nonparametric Statistics
662 (3) Environmental Statistics
665 (4) Discrete Data Analysis
674 (2) Data Management and Presentation I
675 (2) Data Management and Presentation II
B615 (3) (Biostatistics) Design and Analysis of Clinical Trials

Other electives may be selected with the approval of the Undergraduate Minor Coordinator.

(2) Maintain a minimum cumulative grade point-hour ratio of 2.00 in the statistics minor.

Sample Programs

Sample Program 1:

	AU	WI	SP
Sophomore	528*	529	530
Junior Year		420	421
Senior Year	451		

Sample Program 2:

	AU	WI	SP
Sophomore	420	421	
Junior Year	528*	529	530
Senior Year			665

Sample Program 3:

	AU	WI	SP
Junior Year	528*	529, 674	530, 675
Senior Year		420	421

* 528 is not included in the minor but 528 or equivalent is required to take 529. See Note 1 below.

Notes:

1. Students who receive an A in Stat 245, have done well in the AP Statistics course, or have done top A work in Stat 145 may start with Stat 529 (rather than 528). All of these courses essentially cover the same material as Stat 528.

2. Note that Math 254 is a prerequisite for Stat 420. It is expected that students take the necessary math courses to complete this prerequisite during their Freshman/Sophomore years before taking Stat 420 in their Junior year.

3. Students who have already taken Math 254 would typically take the Stat 420-421 sequence in their sophomore year and the 528-530 sequence in their Junior year (see Sample Program 2 above.)

4. Students who obtain the statistics minor may also be eligible to obtain a Master of Applied Statistics Degree (M.A.S.) with one additional academic year of coursework. While a minimum grade of C- is required in any course in the statistics minor and a 2.00 cumulative point-hour ratio is required for the statistics minor, being accepted into the M.A.S. program requires a higher level of performance in these courses.

For students pursuing the M.A.S. in Statistics Degree (only), the grade requirements are:

*   Minimum B- for any courses to be counted towards the M.A.S. degree.
*   Minimum 3.0 cumulative point-hour ratio required for the M.A.S. degree.

Application Procedure:

Students intending to apply for the undergraduate statistics minor should fill out a Minor Program of Study Form and submit it to the Undergraduate Minor Program Coordinator in the Department of Statistics by the beginning of their junior year. After it has been approved, you must file this form with your college or academic counselor. For further information, contact Dr. Mike Fligner, Statistics Undergraduate Minor Program Coordinator, at maf@stat.osu.edu (mailto:maf@stat.osu.edu) .

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November 11, 2010

Larry Krissek
Chair
Committee on Curriculum and Instruction
Arts and Sciences
Campus

Dear Larry:

It is a pleasure to forward to you the proposal for the undergraduate minor in statistics. The change from the current quarter based version includes the elimination of electives for most students. The core course sequence conversions are straightforward, with some modernization and addition of material in places.

Beyond my own review of the documents, the proposal has been discussed by colleagues from other NMS units at a meeting on November 3, 2010. Feedback from these discussions has been incorporated in the proposal.

If you have any questions, I would be happy to address them.

Sincerely,

David Andereck
Professor of Physics
Associate Dean of Natural and Mathematical Sciences, College of Arts and Sciences