Fiscal Unit/Academic Org	Statistics - D0694
Administering College/Academic Group	Arts And Sciences
Co-adminstering College/Academic Group	
Semester Conversion Designation	Re-envisioned with significant changes to program goals and/or curricular requirements (e.g., degree/major name changes, changes in program goals, changes in core requirements, structural changes to tracks/options/courses)
Current Program/Plan Name	Statistics
Proposed Program/Plan Name	Statistics
Program/Plan Code Abbreviation	STAT-MS
Current Degree Title	Master of Science

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		53	35.3	36	0.7
Required credit hours offered by the unit	Minimum	53	35.3	36	0.7
	Maximum	53	35.3	36	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				
	Maximum				

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

- MS_Attachments.pdf: Attachments from the Department of Statistics

(Program Proposal. Owner: Craigmile,Peter F)

Comments

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Craigmile,Peter F	11/17/2010 02:14 PM	Submitted for Approval
Approved	Craigmile,Peter F	11/17/2010 02:15 PM	Unit Approval
Pending Approval	Andereck,Claude David	11/17/2010 02:15 PM	College Approval

THE OHIO STATE UNIVERSITY

Department of Statistics

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November 17, 2010

To: Office of Academic Affairs

Re: Proposed Master of Science in Statistics degree program

Please find attached our proposal for the **Master of Science in Statistics** degree program under semesters. The ad-hoc Master of Science/Ph.D. in Statistics conversion committee put this proposal together, with continual feedback from the entire faculty. It was approved in a faculty meeting on 9 November 2010 (22 for; 0 against; 0 abstain).

Sincerely,

Douglas A. Wolfe

Douglas A. Wolfe
Professor and Chair

Proposed Master of Science in Statistics (MS)

Rationale for Changes

The M.S. program serves multiple audiences: students who obtain an M.S. en route to a Ph.D. in either Statistics or Biostatistics, and students who complete their education at the Masters level. The program is reformulated to better serve both of these audiences. Individual courses are replaced with comprehensive sequences, and the timing of qualifying exams is adjusted to provide early feedback to students, so that they can adjust coursework, resulting in a more useful degree. Careful attention ensures that the program is suitable as a starting point for the Ph.D. s in both Statistics and Biostatistics.

The changes to the program can be summarized as follows:

1. The quarter-based courses on Regression and Experimental Design are replaced with an integrated, year-long sequence on Applied Statistics. This sequence includes additional material currently scattered over a number of elective courses.
2. The time spent on mathematical prerequisites is reduced, with this coursework replaced by preparation for a theoretical treatment of the linear model, and a targeted applied course (on Bayesian methods for the Statistics audience; on clinical trials for the Biostatistics audience).
3. The consulting component of the degree is formally updated to allow either the traditional Statistics consulting course, or the recently developed Biostatistical collaboration course.
4. The timing of the Masters exam is moved up, to allow students to select appropriate second-year courses.

Proposed Master of Science in Statistics
List of Semester courses

Core Required Courses

Under Semesters			Under Quarters			
Code	**Credits**	**Title**	**Code**	**Credits**	**Notes**	
6801	4	Statistical Theory I	620/621	4+2	Straight conversion of a sequence	
6802	4	Statistical Theory II	621/622	2+4	Straight conversion of a sequence	
6910	4	Applied Statistics I	641	5	Modernized, with material added	
6950	4	Applied Statistics II	645	5	Modernized, with material added	
6970	2	Foundations of the Linear Model			New Course	
7910	3	Analysis of Variance	742	4	Modernized, and material added	
6570	2	Applied Bayesian Analysis	625	4	Converted to a two semester hour required course for MAS/PhD. Material has been removed	**OR**
6615	2	Clinical Trials	615	3	Straight conversion	
6750	2	Statistical Consulting	600/601	2+2	Re-envisioned as a two semester hour course with a change in the content of the course.	**OR**
7755	2	Biostatistical Collaboration	Biostat 709	2-3	Straight conversion of the longer version of the Quarter course	

Elective Courses (at least 11 credits of 6000 level or higher)*

For Plan B, letter graded Stat courses at the 6000 level or above (Excludes Stat 6030, 6040, 6060, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 7193, 7194, 7998, 7999, 8010, 8193, 8194, 8895, 8999).
Students obtaining the MS degree under Plan A may include up to four hours of Stat 7998 or 7999 for elective credit, Stat 6750 and 7755 may not be counted for elective credit.

The Ohio State University, Department of Statistics
M.S. PLAN OF STUDY

This form should be filed with the Graduate Studies committee (through your advisor) prior to the end of your first year of study, and absolutely before you submit the Application to Graduate form to the Graduate school.

Name: _____ Date: _____

Circle one: Plan A (**Thesis**) Plan B (**Examination**)

Core Course Requirement:
Indicate your grade in the following required courses or when you plan to take them.

Statistics	6801	_____		6802	_____
	6910	_____		6950	_____
	6970	_____		7910	_____
	6570	_____	or	6615	_____
	6750	_____	or	7755	_____

Elective courses (at least 11 hours): For Plan B, letter graded Stat courses at the 6000 level or above (Excludes Stat 6030, 6040, 6060, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 7193, 7194, 7998, 7999, 8010, 8193, 8194, 8895, 8999). Students obtaining the MS degree under Plan A may include up to four hours of Stat 7998 or 7999 for elective credit, even though these courses are not letter graded. Stat 6750 and 7755 may not be counted for elective credit.

Elective Courses	**Credit Hrs**	**Grade or Quarter Planned**
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total Elective Hours _____

Advisor's approval: _____ Date: _____

Graduate Studies
Committee Approval: _____ Date: _____
Chairperson

The Ohio State University
Department of Statistics

M.S. PLAN OF STUDY

This form should be filed with the Graduate Studies Committee (through your advisor) prior to the end of your first year of study and absolutely before you submit the Application to Graduate form to the Graduate School.

Name: _____ **Date:** _____

Circle one: Plan A (**Thesis**) Plan B (**Examination**)

Core Course Requirements:
Indicate your grade in the following required courses or when you plan to take them.

Statistics	620	_____	621	_____	622	_____
	641	_____	645	_____	742	_____
Consulting	600	_____	or		Pub Hlth 786	_____

Group I Electives (at least 6 hours): Letter graded Stat or Biostat courses at the 700 level or above (excluding Stat 722, 723, and 724)

Group I Elective	Credit Hours	Grade or Quarter Planned
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total Hours:	_____	

Group II Electives (at least 20 hours): Letter graded Stat or Biostat courses at the 600 level or above (excluding Stat 602, 603, 610, 623, 693, 801, 893, 895, and 999)

Group II Elective	Credit Hours	Grade or Quarter Planned
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
Total Hours:	_____	

Advisor's Approval: _____ **Date:** _____

Graduate Studies Committee Approval: _____ **Date:** _____
Chairperson

Proposed Master of Science in Statistics (MS)
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 or their expected timing of graduation.

Requirements for the quarter-based MS degree include a one-year sequence on Statistical Theory (Stat 620-621-622), and applied courses on Experimental Design (Stat 641) and Regression (Stat 645). The Statistical Theory sequence is a straight conversion of the quarter-based sequence. Nearly all MS students take this sequence in one year. However, if a student already has credit for Stat 620, but not for Stat 621, then the student will have the option of taking a two-hour reading course (Stat 6193 or Stat 6194) to complete the equivalent of Stat 6801; if a student already has credit for Stat 620 and Stat 621, but not Stat 622, the student will take Stat 6802.

Additionally:

1. Stat 620-621-622 under quarters will be counted for Stat 6801-6802 under semesters.
2. Stat 641 under quarters will be counted for Stat 6910 under semesters.
3. Stat 645 under quarters will be counted for Stat 6950 under semesters.
4. Stat 742 under quarters will be counted for Stat 7910 under semesters.
5. Stat 600 under quarters will be counted for Stat 6750 under semesters, and
   Biostat 709 under quarters will be counted for Stat 7755 under semesters.

Students who started the MS program under quarters will be encouraged to take the Foundations of the Linear Model course (Stat 6970), and either the Applied Bayesian course (Stat 6570) or the Clinical Trials course (Stat 6615) to complete their program, but this will not be required. The requirement for the Foundations of the Linear Model will be waived, and the two semester-credit-hours for the Applied Bayesian/Clinical Trials course can be made up with other elective courses.

Also, 600 level and above quarter-based elective courses can be counted with a 2/3 conversion to 6000 level and above elective credits under semesters.

Example transition:

	Au	Wi	Sp
Year 1 (Quarters)	Stat 620 (4) Stat 645 (5)	Stat 621 (4) Stat 641 (5)	Stat 622 (4) Elective (5)
Year 2 (Semesters)	Stat 7910 (3) Elective (3) Elective (3)		Stat 6750 (2) Stat 6570 (2) Elective (3)

MASTER OF SCIENCE

The Master of Science (M.S.) degree is awarded by two different routes:

Plan A – Thesis
Plan B – Examination

The M.S. degree, Plan A or Plan B, can be either a terminal degree or a stepping-stone to the Ph.D. degree. The requirements for this degree are more theoretical than those for the M.A.S. Students in this program will generally be in residence for two academic years, or more if continuing for the Ph.D. This may result in the student accumulating more than the required number of hours or at times being able to take a lighter load. This degree program is flexible enough to provide preparation for a career in applied statistics or it can be composed primarily of the first two years of coursework for either the Statistics Ph.D. program or the methodological track of the Biostatistics Ph.D. program.

M.S. Degree Requirements

To be awarded the M.S. degree, the student must successfully complete the requirements listed below in (1) and either (2a) or (2b). In addition, the student's advisor must approve his/her plan of study.

(1) Take and pass with a grade of B- or above in a letter-graded course and with a grade of S in an S/U course:

Core	6801(4)	Statistical Theory I	
(25 hours)	6802(4)	Statistical Theory II	
	6910(4)	Applied Statistics I	
	6950(4)	Applied Statistics II	
	6970(2)	Foundations of the Linear Model	
	7910(3)	Theory of the Linear Model	
one of	6570(2)	Applied Bayesian Analysis	or
	6615(2)	Clinical Trials	
and			
one of	6750(2)	Statistical Consulting	or
	7755(2)	Biostatistical Collaboration	

(2a) Plan A Write a thesis and pass an oral examination in defense of this thesis. At most 4 hours of thesis preparation under Statistics 7998 or Statistics 7999 may be counted among the 11 hours of electives.

Electives*(11 hours) Letter graded Statistics courses at the 6000 level or above, excluding Stat 6030, 6040, 6060, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 7193, 7194, 8010, 8193, 8194, 8895, 8999. Thesis

research under Stat 7998 or Stat 7999. Neither 6750 nor 7755 may be counted for *elective* credit.

(2b) Plan B Pass a written examination that is offered at the same times as the Ph.D. Qualifier I Examination. The examination will cover material from the first year of the Ph.D. coursework. Stat 7998 and Stat 7999 may not be counted as elective hours for a Plan B degree.

Electives*(11hours) Letter graded Statistics courses at the 6000 level or above, excluding Stat 6030, 6040, 6060, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 7193, 7194, 7998, 7999, 8010, 8193, 8194, 8895, 8999. Neither 6750 nor 7755 may be counted for *elective* credit.

* Students may also take appropriate graduate courses outside the Statistics Department to meet the elective requirements. Students may, with approval of the Graduate Studies Committee, substitute one course (up to 3 hours) from another department in place of an elective. The course must have appropriate content for a statistics degree, and must not duplicate the material covered in any course available from the Department of Statistics.

Sample Schedule

First Year		Second Year	
Autumn	Spring	Autumn	Spring
6801	6802	7910	6750
6910	6950	Elective	Elective
Elective	6970 (1st half sem.)	Elective	Elective
	6570 (2nd half sem.)		

The department views either Plan A or Plan B as acceptable. However, the department does not view either plan as an alternative once the other plan has resulted in failure. To this end, a student should declare his/her intentions to the Graduate Studies Committee at the end of his/her first year of study.

Since most students in recent years have elected to take the M.S. degree by examination, a few words about the M.S. degree with thesis are in order. Some professors have problems that are suitable for masters theses. These topics can range from the very mathematical to applications in other fields. Some thesis topics could be direct extensions of problems arising in the Statistical Consulting Service. A thesis written on such a problem converts the degree to an applied degree, in substance, if not in name. A student wishing to learn more about the thesis option, should talk with his/her advisor.

Any student who anticipates obtaining the M.S. degree, either by Plan A or Plan B, in the course of his/her academic career should file the M.S. Plan of Study form by the end of his/her first year of study. He/she must also submit an Application to Graduate form (see sample forms at the end of this Guidelines booklet) to the Graduate School no later than the second Friday of the intended semester of graduation.
Note: Check deadline for filing the form with the graduate school—adjust last paragraph as needed.

MASTER OF SCIENCE (Under Quarters)

The Master of Science (M.S.) degree is awarded by two different routes:

Plan A – Thesis
Plan B – Examination

The M.S. degree, Plan A or Plan B, can be either a terminal degree or a stepping-stone to the Ph.D. degree. The requirements for this degree are more theoretical than those for the M.A.S. As a consequence, students in this program will generally be in residence for at least two academic years; this may result in the student accumulating more than the required number of hours or at times being able to take a lighter load. This degree program is flexible enough to provide preparation for a career in applied statistics or it can be composed entirely of the first two years of coursework for either the statistics or biostatistics Ph.D. program.

M.S. Degree Requirements

To be awarded the M.S. degree, the student must successfully complete the requirements listed below in (1) and either (2a) or (2b).

(1) Take and pass with a grade of B- or above in a letter-graded course and with a grade of S in an S/U course:

Core (28 Hours)	620(4)	Statistical Theory I
	621(4)	Statistical Theory II
	622(4)	Statistical Theory III
	641(5)	Design and Analysis of Experiments
	645(5)	Applied Regression Analysis
	600(2)	Statistical Consulting I (graded S/U)
	742(4)	Analysis of Variance

Group I Electives (6 Hours)	Letter graded Statistics or Biostatistics courses at the 700 level or above (excluding Statistics 722, 723, and 724) with approval of the advisor
Group II Electives (19 Hours)	Statistics or Biostatistics courses at the 600 level or above (excluding Statistics 602, 603, 610, 623, 693, 801, 893, 895, and 999) with approval of the advisor. Statistics 674 and 675 as approved electives are limited to one credit hour per course.*

* Students are also encouraged to take appropriate graduate courses outside the Statistics Department to meet the elective requirements. Students may, with approval of the Graduate Studies Committee,

substitute one course (up to 5 hours) from another department in place of an elective. The course must have appropriate content for a statistics degree, but may not duplicate the material covered in any course available from the Department of Statistics.

(2a) Plan A Write a thesis and pass an oral examination in defense of this thesis. At most 6 hours of thesis preparation under Statistics 893 may be counted among the 20 hours under "Group II Electives".

(2b) Plan B Pass a written examination that is offered at the same times as the Ph.D. Qualifier I Examination and covers material in Statistics 620, 621, 622, 641, and 645. A student will normally take this examination in the Autumn Quarter of the second year of graduate work.

Sample Schedule

First Year

Summer	Autumn	Winter	Spring
602	620	621	622
603	645	641	EG-II
EG-II	EG-II	EG-II	EG-II

Second Year

	742	EG-I	600
	EG-I / II	EG-II	EG-I
	EG-I / II		EG-II

EG-I: Elective from Group I; EG-II: Elective from Group II
Note: Enrollment in Summer Quarter of the first year is optional, but encouraged.

The department views either Plan A or Plan B as acceptable. However, the department does not view either plan as an alternative once the other plan has resulted in failure. To this end, a student should declare his/her intentions to the Graduate Studies Committee at the beginning of his/her second year of study.

Since most students in recent years have elected to take the M.S. degree by examination, a few words about the M.S. degree with thesis are in order. Some professors have problems that are suitable for masters theses. These topics can range from the very mathematical to applications in other fields. Some thesis topics could be direct extensions of problems arising in the Statistical Consulting Service. A thesis written on such a problem converts the degree to an applied degree, in substance, if not in name. If you wish to learn more about the thesis option, talk with your advisor.

Any student who anticipates obtaining the M.S. degree, either by Plan A or Plan B, in the course of his/her academic career should file the M.S. Plan of Study form by the end of his/her first year of study. He/she must also submit an Application to Graduate form (see sample forms at the end of this Guidelines booklet) to the Graduate School no later than the second Friday of the intended quarter of graduation.