

TO: Randy Smith, Vice Provost for Academic Programs

FROM: Graduate School Curriculum Services

DATE: **3/01/2024**

RE: Proposal to **Revise the MS in Statistics** in **College of Arts and Sciences**

The **Department of Statistics** in the **College of Arts and Sciences** is proposing a **Revision to the MS in Statistics**

The proposal was received by the Graduate School on **1/29/2024**. The combined GS/CAA subcommittee first reviewed the proposal on **2/28/2024**. The proposal is supported for elevation to CAA for review.

Kowalsky, Lisa

From: Vankeerbergen, Bernadette
Sent: Monday, January 29, 2024 4:18 PM
To: Miriti, Maria; Kowalsky, Lisa
Cc: Martin, Andrew; Ottesen, Jennifer
Subject: Revision Statistics MS, Statistics PhD, and Biostatistics PhD
Attachments: Revision to the Statistics PhD - Revised 12-22-23.pdf; Revision to the Statistics MS - Revised 11-29-23.pdf; Revision to the Biostatistics PhD - Revised 12-22-23.pdf; Statistics PhD, Statistics MS, Biostatistics PhD Letter of Motion.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Dear Maria and Lisa,

Please find attached proposals to revise the Statistics PhD, Statistics MS, and Biostatistics PhD. The proposals were approved on Friday, January 19, 2024 by the ASC Curriculum Committee (ASCC).

We are now advancing the proposals to be reviewed by the Graduate School. The attached documents are (1) the actual proposals submitted by the Dept of Statistics & (2) the Natural and Mathematical Sciences Subcommittee cover letter to ASCC.

The contact for these proposals is Professor Yoonkyung Lee.

Please use this email as a cover letter indicating that the proposals have been duly reviewed and approved by the appropriate ASC curricular bodies (including the full ASC Curriculum Committee).

Please let me know if you have any questions.

My best,
Bernadette



Bernadette Vankeerbergen, Ph.D.
Assistant Dean, Curriculum
College of Arts and Sciences
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Columbus, OH 43210
Phone: 614-688-5679
<http://ascas.osu.edu>



Chair, Arts and Sciences Curriculum Committee

January 16, 2024

Dear Chair and Members of the Arts and Sciences Curriculum Committee:

On October 26, 2023, the Natural and Mathematical Sciences Subcommittee reviewed three related requests from the Department of Statistics to revise 1) the Statistics PhD program, 2) the Biostatistics PhD program, and 3) the Statistics MS program. For the Statistics PhD program, proposed changes are 1) the introduction of new coursework, including a new mathematics foundations sequence, and revision of existing coursework for all three programs. 2) the introduction of standard and accelerated tracks, as well as personalized pathways, in the Statistics PhD program, with the accelerated track allowing students to immediately begin second-year coursework, 3) the introduction of a mandatory placement exam to identify students who would benefit from the new mathematical foundations sequence, and 4) providing the option of taking a Master's-level exam at the start of the Statistics PhD program, success at which allows entry to the accelerated track. The department's rationale for these changes reflects the diversity of student background and preparation upon entering the programs. Some students have taken Master's-level coursework and may find first-year coursework to be repetitive, while other students may lack some of the necessary mathematical background.

Proposed changes to the Biostatistics PhD are 1) the introduction of new coursework in the first year and 2) changes to course requirements so that there is a single set of curriculum requirements for this interdisciplinary program. These department's rationale for the proposed changes is to unify the curriculum for this interdisciplinary program and to allow additional flexibility. Proposed changes to the Statistics MS are the introduction of new coursework in the first year. Changes to coursework in all three programs reflect the intertwined nature of these programs, as coursework in the first two years largely overlaps among programs. Therefore, changes to the required coursework for the Statistics PhD necessitate changes to required coursework in the Statistics MS and Biostatistics PhD programs.

The NMS Subcommittee voted to approve the proposed changes to the Statistics PhD with two contingencies and three recommendations and voted to approve the proposed changes to the Biostatistics PhD with one contingency. Revised submissions addressing these contingencies and recommendation wer reviewed and approved by Ian Hamilton, Chair of the Natural and Mathematical Sciences Subcommittee, on January 11, 2024. These proposal are now advanced to the ASCC with a motion to approve.

The NMS Subcommittee requested additional information on the proposed Statistics MS, which was received on November 29, 2023. The NMS Subcommittee voted to approve the proposed changes to the Statistics MS on December 7, 2024. This proposal is likewise now advanced to the ASCC with a motion to approve.

Sincerely,

A handwritten signature in black ink, appearing to read 'I. Hamilton', with a long horizontal flourish extending to the right.

Ian Hamilton
Professor
Department of Evolution, Ecology, and Organismal Biology
Department of Mathematics
Chair, ASCC Natural and Mathematical Sciences Subcommittee



Re: Revision of the Statistics MS and PhD Programs

October 9, 2023

Dear Colleagues and Panel Members,

On behalf of the Department of Statistics, I am pleased to put forward our proposals to revise the Masters of Science (MS) in Statistics and Doctor of Philosophy (PhD) in Statistics degrees. As described in more detail in the proposals themselves, these revisions respond to changes in the field and feedback from a variety of sources. We believe that the changes will improve the experience and training for many of our students. The proposed revisions for the MS and PhD programs are closely intertwined, since under the current curriculum, the first year courses for these programs are nearly identical.

In addition, the department is a key partner in the Interdisciplinary PhD in Biostatistics. Again, the first year courses in the current curriculum for this program are nearly identical to the statistics MS and PhD programs. Our faculty have been communicating our proposed course changes with the faculty of the Interdisciplinary PhD in Biostatistics. This faculty has shared with us their proposed curriculum that responds to our course changes, and we include this document for context. We also include a letter of concurrence from the chair of the Division of Biostatistics, which is the other major partner in the program.

We hope that you agree that our revisions to the Statistics MS and PhD programs will better serve our students, the Department of Statistics, and the university.

Sincerely,



Eloise E. Kaizar
Professor and Chair
Department of Statistics

Response to ASCC Natural and Mathematical Sciences Subcommittee Feedback for Proposal

1. Statistics MS

- a. The Subcommittee asks the department to verify the wording in the proposal regarding the MS non-thesis as a steppingstone to the PhD program. The current wording gives the impression that the department is excluding MS thesis students from the PhD. If the department does not mean to imply this, the Subcommittee advises them to open the statement up by saying that the MS program can be a steppingstone to the PhD or to include the means by which MS thesis students can qualify for the program (if the requirements for them are meant to be different from the non-thesis students). [Proposal pg. 6]

Following the suggestion, we changed the sentence from “The Non-thesis route may serve as a steppingstone to the Ph.D. degree if later admitted to the Ph.D. program.” to “The Non-thesis route may better serve as a steppingstone to the Ph.D. degree if later admitted to the Ph.D. program.” The non-thesis route (passing the MS exam) is clearly better than the thesis route for those MS students who may continue to the PhD program, and that is consistent with how we advise MS students. It is because PhD students in our program are required to pass the MS exam at a high level as their first qualifying exam, and the second qualifying exam can be attempted only after the first qualifying exam has been passed. For this reason, while we do not exclude MS thesis students from the PhD, the thesis route will take much longer for students to fulfill the requirements for the PhD program. As an additional piece of information, most of our MS students take the non-thesis option, and with proper advising, to this date, there hasn’t been a single MS thesis student who went on to the PhD program.

- b. The Subcommittee would like the department to describe how, if at all, they are working with the Graduate School to address the conflict of the timing of the MS exam and student enrollment requirements given that Spring semester ends in April and the exam is in May.
- c. The Subcommittee is concerned that the exam is not in concurrence with the Graduate School’s definition of a master’s exam and asks if the Graduate School has approved the details of the MS exam for the department. See section 6.2 of the Graduate School handbook <https://gradsch.osu.edu/all/graduate-school-handbook-gsh#section6.2>.

Comments b and c are about the timing of the MS exam in our department. As stated in the proposal p.2, the MS program in statistics is designed to serve students who obtain an MS degree en route to a PhD in statistics or biostatistics as well as those who complete their education at the master's level. Because of this dual purpose, the coursework for the first year of the MS program and PhD program are identical, and the MS exam is designed to assess students' mastery of the core courses in the first year. The exam is scheduled for May following their first year, with a second chance in August if needed. This timing is *critical* for guiding both MS and PhD students in selecting their second-year courses based on their MS exam results. This MS exam arrangement was formally approved by the Graduate School during the semester conversion. With the Subcommittee's request, we sought confirmation from the Graduate School that the Graduate School supports the current exam arrangement for the MS program, which has proven to be successful for many years since semester conversion. The Associate Dean Maria Miriti immediately responded to our request positively as in the attached letter.

RE: Request for continued support of our MS exam arrangement

Miriti, Maria <miriti.1@osu.edu>

Wed 11/15/2023 9:46 AM

To: Xu, Xinyi <xinyi@stat.osu.edu>

Cc: Kaizar, Elly <kaizar.1@osu.edu>; Lee, Yoonkyung <yklee@stat.osu.edu>; Zhang, Yuan <yzhanghf@stat.osu.edu>

Dear Xinyi,

Thank you for your inquiry. Yes, you may maintain your schedule for MS examinations. Please don't hesitate to reach out if you have other questions. Remember that the %change in your program will determine the level of review that is required. If these are >50%, review by ODHE is required.

Best wishes,

Maria



Dr. Maria N. Miriti

Professor, Dept. of Evolution, Ecology, and Organismal Biology

Associate Dean of Academic Excellence, Graduate School

614-292-6997 Office

miriti.1@osu.edu

From: Xu, Xinyi <xinyi@stat.osu.edu>

Sent: Wednesday, November 15, 2023 8:52 AM

To: Miriti, Maria <miriti.1@osu.edu>

Cc: Kaizar, Elly <kaizar.1@osu.edu>; Lee, Yoonkyung <yklee@stat.osu.edu>; Zhang, Yuan <yzhanghf@stat.osu.edu>

Subject: Request for continued support of our MS exam arrangement

Dear Dean Miriti,

My name is Xinyi Xu, and I serve as the Vice Chair for Graduate Studies in the Statistics Department. Our department is currently undergoing a curriculum redesign, aimed at better meeting the evolving needs of our graduate students. This involves updating the selection of required and elective courses, while keeping the learning goals and assessment plan of the graduate programs. As part of this comprehensive review, we would like to ask for your continued support for our MS exam arrangement.

Our MS exam currently caters to two groups:

- MS students in Statistics opting for the non-thesis route.
- PhD students in Statistics or Biostatistics pursuing an MS degree en route to their doctorate.

The coursework for the first year of both the MS and PhD programs is identical, with the exam designed to assess students' mastery of the core courses. The exam is scheduled for May following their first year, with a second chance in August if needed. This timing is critical for guiding both MS and PhD students in selecting their second-year courses based on their MS exam results.

This MS exam arrangement was formally approved by the Graduate School during our semester conversion. Its effectiveness has been clearly demonstrated over the past decade. For your reference, please find the details on page 5 of the following proposal:

https://oaa.osu.edu/sites/default/files/uploads/caa/meetings/2010-11/2011-01-26/Master%20of%20Science%20Program%20in%20Statistics_LOW.pdf

and on page 10 of the meeting minutes:

https://oaa.osu.edu/sites/default/files/uploads/caa/meetings/2010-11/2011-01-26/CAAM_2011-01-26.pdf

Given its proven success, we'd like to keep this exam structure in the revised curriculum. Could you please confirm that the Graduate School supports our current exam arrangement for the MS program as before, so that we can maintain it going forward? If you have any questions or would like any further information, we would be happy to meet and discuss this in detail.

Thanks,
Xinyi

Xinyi Xu
Professor and Vice Chair of Graduate Studies
Department of Statistics
The Ohio State University
Columbus, OH 43210

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Current Program Guide
Revised Program Guide
Plan of Study Form (revised version)
Assessment Plan (current version)

Statistics MS Program Revision

Background

The MS program in statistics is designed to serve students who obtain an MS degree en route to a PhD in statistics or biostatistics as well as those who complete their education at the master's level. Because of this dual purpose, the MS program and PhD program overlap in the first year required courses and some second-year courses.

After several years of review and consideration of various curricular changes in the PhD program, the Department of Statistics is proposing a curricular revision to the PhD program with the desired implementation term of Fall 2024. Detailed information on the revised PhD program and the rationale for the revision can be found in the "Statistics PhD Program Revision" document that accompanies this proposal. The proposed course changes in the PhD program will affect those courses in the MS program shared with the PhD program. This proposal describes the corresponding changes to the MS program. The implementation term for this revised MS program is Fall 2024. The last major changes to the MS program in statistics were made during the semester conversion in 2011-2012. See [the MS curriculum](#) (p. 6) approved at the semester conversion.

Outline of the Proposed Changes

Course changes

Revisions to the PhD curriculum include changes to the following 8 courses, among which three are new courses and five are revisions of the existing courses. The course changes in [blue](#) only apply to the PhD program.

- 6111 (3 credits) & 6112 (3 credits): a new sequence for reviewing and introducing mathematical foundations necessary for the coursework in PhD and MS programs. This sequence with 6 credits total will replace MATH 4545 (4 credits) and STAT 6860 (2 credits).
- 6910 (4 credits) & 6950 (4 credits): resequencing of 6910 and 6950 changing their order.
- [7301 \(3 credits\): reduce redundancy with 6802 \(first-year theory course\) and introduce topics in high dimensional estimation which are relevant to contemporary applications.](#)
- [7302 \(3 credits\): add more computational and modeling elements of Bayesian analysis to 7303 since 6570 \(2 credits\) Applied Bayesian Analysis is no longer required for the PhD program. The change will better prepare students for research in Bayesian analysis.](#)
- 7410 (3 credits): refocus course content to cover more applied statistical modeling techniques.
- [7541 \(3 credits\): a new course on stochastic processes with more emphasis on applications and simulation replacing 7540 \(Theory of Stochastic Processes\)](#)

In the revised MS program, students will take the new mathematical foundations sequence (6111 & 6112), revised applied statistics sequence (6910 & 6950) and revised course on linear modeling (7410).

See the table below for comparison between the proposed and current curricula in core required courses and change in elective courses.

Math Prerequisite

Current			Proposed			
Code	Credits	Title	Code	Credits	Title	Notes
MATH 4545**	4	Analysis Overview				Removed
			6111	3	Foundations of Statistical Theory I	New course*
			6112	3	Foundations of Statistical Theory II	New course*

*6111-6112 replace MATH 4545 and STAT 6860. Math prerequisites do not count toward the credit hours required for the degree.

**MATH 4545 is not required but considered as math prerequisites for 6801-6802 in the current MS program

Core Required Courses

Current			Proposed			
Code	Credits	Title	Code	Credits	Title	Notes
6801	4	Statistical Theory I	6801	4		
6802	4	Statistical Theory II	6802	4		
6860	2	Foundations of the Linear Model				Removed*
6910	4	Applied Statistics I	6910	4	Applied Statistics II	Resequenced and revised
6950	4	Applied Statistics II	6950	4	Applied Statistics I	Resequenced and revised
7410	3	Theory of the Linear Model	7410	3	Linear Models	Revised

Pick one of the following:

Current			Proposed		
Code	Credits	Title	Code	Credits	Notes
6570	2	Applied Bayesian Analysis	6570	2	Changed to elective
6615 (PUBHBIO 7215)	2	Design and Analysis of Clinical Trials	6615	2	Changed to elective

Pick one of the following:

Current			Proposed		
Code	Credits	Title	Code	Credits	Notes
6750	2	Statistical Consulting and Collaboration	6750	2	
7755* (PUBHBIO 7245)	2	Biostatistical Collaboration	PUBHBIO 7245	2	Typically taken by students pursuing a PhD in Biostatistics, who often also earn an MS in Statistics en route to their PhD.

*This course stopped being cross-listed in May 2022.

Elective Courses

There is no change in the required credit hours for elective courses (11 hours of approved electives). 6570 and 6615 (PUBHBIO 7215) will be added to elective courses.

The percent change of the revision:

The proposed program revision adds 6111 (3 cr) and 6112 (3 cr) as new courses although they can be viewed as replacements of the existing courses (MATH 4545 and STAT 6860) covering similar course contents. Note again that MATH 4545 is not a required course in the current program, but it is considered as math prerequisites for 6801-6802. The rest of the revised courses (6910, 6950, and 7410) have about 15% of change on average in the course content. In addition, as pick one of the two options, 6570 (2 cr) and 6615 (2 cr) are removed from the MS requirements. This leads to a change of 11.65 ($=10 + 11 \cdot 0.15$) credits total out of 36 credits representing 32.36% of change to the program.

The revised MS program requires a minimum of 32 credit hours. As 6860 (2 cr) is removed from the curriculum and 6111-6112 (6 cr total are added) as math prerequisites but they don't count toward the degree, we propose to reduce the total credit hours from 36 in the current program to 32.

Transition Plan

We will enact this program change for students entering the program in the academic year 2024-2025. Students currently in the existing program will continue with the current program and will not be impacted by this redesign either in terms of progress towards their degree or their expected date of graduation, though they may take some courses with revised content. We do not anticipate any students will have taken only part of the applied statistics sequence (STAT 6910/6950) and thus be 'out of sequence' due to the course sequence change starting in Autumn 2024. In the unlikely event that this sequencing issue would arise, the Graduate Studies Chair will work individually with the student and appropriate instructors. We expect that STAT 6570 will be offered every year for the foreseeable future, since this is a required course for the Master of Applied Statistics.

Learning Goals and Assessment Plan

There is no proposed change in the learning goals for the MS program and the assessment plan. For information, the learning goals are listed below, and the current assessment plan is included in Appendix.

Learning Goals

A student graduating with a MS in Statistics should meet the following learning goals:

1. Display proficient understanding of probabilistic theory
2. Display proficient understanding of the theory of statistical inference
3. Display proficient understanding of statistical models, and the use of such models in analyzing data

Appendix

- Current Program Guide (See p. 4 of the [Program Guide to Graduate Studies in Statistics](#))
- Revised Program Guide
- Plan of Study Form (revised version)
- Assessment Plan (current version)
- Syllabi of new and revised courses (see those included in the Statistics PhD program revision proposal)

MASTER OF SCIENCE IN STATISTICS PROGRAM

The Master of Science (M.S.) degree program can provide preparation for a career in applied statistics or it can be composed primarily of the first two years of course work for either the Statistics Ph.D. program or the methodology specialization of the Biostatistics Ph.D. program. The M.S. degree may be awarded by one of two different routes: Thesis or Non-thesis. Under either route, the M.S. may be a terminal degree. The Non-thesis route may better serve as a steppingstone to the Ph.D. degree if later admitted to the Ph.D. program. The M.S. requires a minimum of 32 credit hours and students in the M.S. program will generally be in residence for two academic years.

Students in the M.S. program are subject to the policies set forth by the Graduate School. See the [Graduate School Handbook](#) for details.

Course Requirements (32 credit hours)

<u>Mathematics</u>		Program coursework requires Advanced Calculus, Linear Algebra, and some Real Analysis. Stat 6111 and Stat 6112 are recommended; previous coursework or courses in the Math department could also be used to meet this requirement.
<u>Core (21 hours)</u>	6801 (4), 6802 (4) 6950 (4), 6910 (4) 7410 (3)	Statistical Theory I & II Applied Statistics I & II Linear Models
<u>one of</u>	6750 (2) PUBHBIO 7245 (2)	Statistical Consulting and Collaboration or Biostatistical Collaboration
<u>Electives (11 hours)</u>		11 hours of approved elective courses appropriate to the Thesis or Non-Thesis option as described in (2a) or (2b) below

Sample M.S. in Statistics Course Program

(Courses are typically only offered in the terms in which they are listed in the sample program below. Individual electives are not offered on a regular basis. See [Buckeyelink](#) for details on previous/current offerings and enrollment requirements, including prerequisites. Note that offerings are subject to change. Refer to the [Courses page](#) on our department website for additional information.)

Basic Sample Program

<u>First Year</u>	Autumn 6801 (4) 6950 (4) 6111 (3)	Spring 6802 (4) 6910 (4) 6112 (3)
<u>Second Year</u>	Autumn 7410 (3) 6750 (2) Elective	Spring Elective Elective Elective

Sample Program for a Terminal Master's Degree

<u>First Year</u>	Autumn	Spring
	6801 (4)	6802 (4)
	6950 (4)	6910 (4)
	6111 (3)	6112 (3)
<u>Second Year</u>	Autumn	Spring
	7410 (3)	6500 (3)
	6750 (2)	6550 (2) or 6530 (2)
	6730 (2)	SP1 6650 (2)
	6510 (3) or 6520 (3) or 6560 (3)	SP2 6570 (2)

Sample Program for a Master's Degree for Students Planning to Pursue a Ph.D.

<u>First Year</u>	Autumn	Spring
	6801 (4)	6802 (4)
	6950 (4)	6910 (4)
	6111 (3)	6112 (3)
<u>Second Year</u>	Autumn	Spring
	7201 (3)	7302 (3)
	7301 (3)	7541 (3)
	7410 (3)	7730 (3)
	6750 (2)	

Notes on the Program Requirements

1. Course Grades – All courses used towards the degree requirements must be taken and passed with a grade of B- or above in a letter-graded course and with a grade of S in a S/U course. Note that all graduate students are required to maintain a cumulative GPA of at least 3.0 both overall and in their statistics courses in order to remain in good standing.
2. Thesis or Examination – The department views either the thesis or non-thesis option as acceptable. However, the department does not view either option as an alternative once the other option has resulted in failure. Most students in recent years have elected to choose the non-thesis option. A student wishing to learn more about the thesis option should talk with the Graduate Studies Chair, who serves as the advisor for all M.S. students unless the student chooses to pursue a thesis with another faculty member. Students planning to do the thesis option must notify the Graduate Studies Chair via email by the beginning of the second year of study.

2a. Thesis Option – Write a thesis and pass an oral examination in defense of this thesis.

(Note: Some professors have problems that are suitable for masters' theses. These topics can range from the very mathematical to applications in other fields.)

Electives* (11 hours): Letter graded Statistics courses at the 6000-level or above (including their cross-listed equivalents), excluding STAT 6030, 6040, 6111, 6112, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 6740, 7193, 7194, 8010, 8193, 8194, 8895, 8999. Up to four hours of thesis preparation under STAT 7998 or STAT 7999 may be counted among the 11 hours of electives. Up to four hours of STAT 8750.xx may be counted.

2b. Non-thesis Option – Pass the M.S. Examination, a written examination that is offered in May, with a second offering in August if at least one student who failed the first offering of the M.S. Exam wishes to retake the exam. M.S. students opting for the non-thesis graduation requirement are expected to take the May offering of the M.S. Exam and are also expected to take the next offering in the event of a failure on the May exam. The examination will cover material from the first year of the M.S. course work. A student is permitted a maximum of two attempts at successful completion of the examination.

Electives* (11 hours): Letter graded Statistics courses at the 6000-level or above (including their cross-listed equivalents), excluding STAT 6030, 6040, 6111, 6112, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 6740, 7193, 7194, 7998, 7999, 8010, 8193, 8194, 8895, 8999. Up to four hours of STAT 8750.xx may be counted. STAT 7998 and STAT 7999 may not be counted as elective hours for a non-thesis option degree.

*Students may, with approval of the Graduate Studies Committee, count one course (up to 3 hours) from another department as 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.

Forms

Any student who anticipates obtaining the M.S. degree in the course of his/her academic career should file the departmental M.S. Plan of Study form prior to the student's last term of enrollment. Any subsequent modifications in this Plan of Study will require approval of the Graduate Studies Committee. The student must also submit the online Graduate School Application to Graduate form via GRADFORMS.OSU.EDU by the published deadline of the Graduate School. Please consult the [Graduate School website](#) for details. The Plan of Study form must be submitted prior to the Application to Graduate.

Assessment Plan for the Statistics M.S.

Learning Goals for the Statistics M.S.: A student graduating with a M.S. in Statistics should meet the following learning goals:

1. Display proficient understanding of probabilistic theory [as studied in Stat 6801, for example]
2. Display proficient understanding of the theory of statistical inference [e.g. Stat 6802]
3. Display proficient understanding of statistical models, and the use of such models in analyzing data [e.g. Stat 6910, 6950, etc.]

Assessment of Learning Goal 1: Display proficient understanding of probabilistic theory

Assessment Rubric: The program will directly assess students' achievement of this learning goal by scoring the comprehensive M.S. Examination. The M.S. Examination Committee will assess each student on the ordinal scale: "High Proficiency," "Satisfactory Proficiency," "Some Proficiency," or "Low Proficiency." This will be done separately from the committee's determination of who passes the exam on an overall basis, and the committee will decide which questions on the M.S. Examination are appropriate for assessing this learning goal. (Note that some questions on the M.S. Examination could be appropriate for assessing more than one learning goal.) The chair of the M.S. Examination Committee will be responsible for communicating the rating summaries and remarks to the assessment program coordinator, to the chair of the curriculum committee, and to the Graduate Program Coordinator.

Criterion: The students assessed will be placed in three categories: "Already Completed the M.S.," "Currently Pursuing the M.S.," and "Other (Not Completing or Currently Pursuing the M.S.)." If at least 80% of the assessment ratings of students who have completed the M.S. are in the "High Proficiency" or "Satisfactory Proficiency" categories, we will consider this as evidence of success in achieving Learning Goal 1 for our M.S. graduates. We will also monitor the overall percentage of "High Proficiency" or "Satisfactory Proficiency" ratings for all students, not just those completing the M.S.

Use of Data: Aggregated data for each learning outcome will be examined by the Graduate Studies Committee and/or by the Curriculum Committee on an annual basis. If the data do not meet our criteria or are otherwise disappointing, the committee will bring this to the attention of the Statistics faculty to discuss possible remedies, including: meeting with students directly to discuss their performance, making improvements in course content, and making improvements in course delivery and learning activities within courses.

Assessment of Learning Goal 2: Display proficient understanding of the theory of statistical inference

Assessment Rubric: [same as for Learning Goal 1]

Criterion: [same as for Learning Goal 1]

Use of Data: [same as for Learning Goal 1]

Assessment of Learning Goal 3: Display proficient understanding of statistical models, and the use of such models in analyzing data

Assessment Rubric: [same as for Learning Goal 1]

Criterion: [same as for Learning Goal 1]

Use of Data: [same as for Learning Goal 1]

DEPARTMENT OF STATISTICS



MS Plan of Study Form

Submit this form to the Graduate Studies Chair prior to your last term of enrollment. Any subsequent modifications in this Plan of Study will require approval of the Graduate Studies Committee. Note that you must also submit the online Graduate School Application to Graduate form via GRADFORMS.OSU.EDU by the published deadline of the Graduate School. The Plan of Study form must be submitted prior to the Application to Graduate.

Student Name: _____ **OSU. #** _____

Core Course Requirements (21 hours)

Fill in your grade for each course completed. For courses yet to be completed, indicate the term/year you plan to take the course. If you have received approval to substitute a course, cross off the required course and fill in the substituted course information and corresponding grade.

Course	Course Title	Grade	Course	Course Title	Grade
6801 (4)	Statistical Theory I	_____	7410 (3)	Linear Models	_____
6802 (4)	Statistical Theory II	_____	6750 (2) –or–	Statistical Consulting	_____
6950 (4)	Applied Statistics I	_____	PubHBio 7245 (2)	Biostat Collaboration	_____
6910 (4)	Applied Statistics II	_____			

Elective Course Requirements (11 hours)*

Course	Course Title	Hours	Grade
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

TOTAL ELECTIVE HOURS _____

* Letter graded STAT courses at the 6000-level or above, excluding STAT 6030, 6040, 6060, 6111, 6112, 6193, 6194, 6201, 6301, 6302, 6410, 6450, 6740, 7193, 7194, 7998, 7999, 8010, 8193, 8194, 8895 and 8999. Up to 4 hours of STAT 8750.xx may be counted. At most 4 hours of STAT 7998 and 7999 may be counted by thesis students only. Special approval is required to substitute one course (no more than 3 credit hours) from another department.

Plan (circle): Thesis Examination **Exam/ Defense Date:** _____ **Result** (circle): Pass Fail N/A

Proposed Term/Year of Graduation (circle): SU AU SP 20 _____

Student's Signature: _____ **Date:** _____

Advisor: _____ **Date:** _____
 Print Sign

FOR DEPARTMENT USE ONLY

All degree requirements met: _____ Yes _____ No _____ Pending _____

Approval: _____ **Date:** _____
 Print Sign



**THE OHIO STATE
UNIVERSITY**

Curriculum Proposal Checklist

Title of Program:

Effective term:

College:

New/Establish:

Secondary Major Eligible:

Academic Unit:

Revise:

50% Revision:

Mark Up:

Program Contact:

Terminate:

Suspend:

Certificate Category*:

Degree/Credential:

Program of Study :

Title:

Code:

Program Focus*:

Credit hours to degree/credential:

Is this a change to the current total?

Yes No

Program offered only online?

Yes No

If yes, is there a signed MOU with ODEE?

Yes No

Campus(es) where offered:

Columbus

ATI

Lima

Mansfield

Marion

Newark

Rationale:

Student Curriculum Sheet Required:

Four Year (or appropriate) Plan:

Academic Unit Curriculum Committee approval date:

College Curriculum Committee approval date:

Graduate School Council approval date*:

Regional Campus approval date*:

Council on Academic Affairs approval date:

University Senate approval date*:

Board of Trustees approval date*:

ODHE approval date*:

* If applicable

Kowalsky, Lisa

From: Vankeerbergen, Bernadette
Sent: Tuesday, February 27, 2024 10:53 AM
To: Miriti, Maria
Cc: Kowalsky, Lisa
Subject: RE: Revision Statistics MS, Statistics PhD, and Biostatistics PhD

Hi Maria,

The only graduate-level courses that have been approved for DL in the Dept of Statistics are the following

1. Statistics 5301 (100% DL)
2. Statistics 5302 (100% DL)
3. Statistics 5730 (100% DL)
4. Statistics 5740 (100% DL)
5. Statistics 6201 (100% DL)
6. Statistics 6450 (100% DL)
7. Statistics 6510 (100% DL)
8. Statistics 6550 (100% DL)
9. Statistics 6610 (100% DL)
10. Statistics 7430 (100% DL)

Does this help?

The College of ASC does not have DL information about courses in the College of Public Health, however. Public Health would need to provide you with that information.

Best,
Bernadette



Bernadette Vankeerbergen, Ph.D.

Assistant Dean, Curriculum

College of Arts and Sciences

114F University Hall, 230 North Oval Mall.

Columbus, OH 43210

Phone: 614-688-5679

<http://ascas.osu.edu>

From: Miriti, Maria <miriti.1@osu.edu>
Sent: Tuesday, February 27, 2024 9:55 AM
To: Vankeerbergen, Bernadette <vankeerbergen.1@osu.edu>
Cc: Kowalsky, Lisa <kowalsky.10@osu.edu>
Subject: RE: Revision Statistics MS, Statistics PhD, and Biostatistics PhD

Hi Bernadette,