From:	Smith, Randy
To:	Klinger, Ellen; Osborne, Jeanne
Cc:	Leite, Fabio; Miriti, Maria; Reed, Katie; Smith, Randy; Duffy, Lisa; Hunt, Ryan; Strange, Jamie; Christy, Ann
Subject:	Proposal to revise the Master of Science Plan A and B for Entomology
Date:	Friday, April 5, 2024 9:09:09 AM
Attachments:	image001.png

Ellen and Jeanne:

The proposal from the Department of Entomology to revise the Master of Science Plan A and B for Entomology was approved by the Council on Academic Affairs at its meeting on April 3, 2024. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal review/approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2024).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Fábio Leite (.11), or me.

Randy

THE OHIO STATE UNIVERSITY

W. Randy Smith, Ph.D.
Vice Provost for Academic Programs
Office of Academic Affairs
University Square South, 15 E. 15th Avenue, Columbus, OH 43201
614-292-5881 Office
smith.70@osu.edu
Assisted by:
Katie Reed
Executive Assistant
(614) 292-5672
reed.901@osu.edu

TO: Randy Smith, Vice Provost for Academic Programs

FROM: Graduate School Curriculum Services

DATE: **3/01/2024**

RE: Proposal to **Revise the Master of Science Plan A and Plan B in Entomology** in **Food, Agricultural and Environmental Studies**

The **Department of Entomology** in the **Food, Agriculture and Environmental Studies** is proposing a **Revision to the Master of Science Plan A and Plan B in Entomology**.

The proposal was received by the Graduate School on **10/02/2023**. The combined GS/CAA subcommittee first reviewed the proposal on **11/30/2023**. It is supported for elevation to CAA for review.

THE OHIO STATE UNIVERSITY

College of Food, Agricultural, and Environmental Sciences

Academic Programs
100 Agricultural Administration
2120 Fyffe Road
Columbus, OH 43210

614-292-6891 Phone
614-292-1218 Fax

cfaes.osu.edu

October 2, 2023

Vice Provost W. Randy Smith
Office of Academic Affairs
203 Bricker Hall
190 North Oval Mall

Dear Vice Provost Smith,

The College of Food, Agricultural, and Environmental Sciences is requesting Council on Academic Affairs approval for revisions to the Master of Science Plan A and Master of Science Plan B in the Department of Entomology as outlined in the attached document.

The Department of Entomology proposes the removal of a course that is no longer offered in the Department (ENTMLGY 5001) and the addition of additional elective options to these graduate programs. In addition, adjustments were made in the number of required credits to provide to students greater flexibility and opportunity to take courses that are aligned with their academic and research interests.

This proposal has been approved by the Department of Entomology and by the College of Food, Agricultural, and Environmental Sciences Committee on Academic Affairs. Please let me know if any additional information is needed in support of this request.

Sincerely,

Jeanne M. Osborne

Jeanne Osborne
Assistant Dean for Academic Affairs
College of Food, Agricultural, and Environmental Sciences
Osborne.2@osu.edu
Tel: 614-292-2389

Cc: Dr. David Barker, Dr. Ellen Klinger, Dr. Ann Christy

THE OHIO STATE UNIVERSITY College of Food, Agricultural, and Environmental Sciences
Department of Entomology
216 Kottman Hall
2021 Coffey Rd.
Columbus, OH 43210

614-292-9325 Phone
614-292-7162 Fax
http://entomology.osu.edu

DATE: September 6, 2023
TO: Jeanne Osborne, Assistant Dean Academic Affairs
FROM: Ellen Klinger, Assistant Professor Professional Practice
RE: Modifications of ENTMLGY programs

The Entomology department is requesting modification of the program descriptions for two of our graduate programs, M.S. Plan A, M.S. Plan B. Some changes are to be made in these degree plans including the removal of a no longer offered elective and the addition of new classes as electives in these degree plans. We do not anticipate the removal of classes to be an issue for any current students, as ENTMLGY 5001 has not been offered for a minimum of 6 years. This update will improve the number of offerings available to our students and reflect the current curriculum.

In addition, the faculty voted on changes to our Masters programs intended to improve flexibility in student course choices. Under the current program we are observing that having 21 of the 30 required credits in prescribed Masters course work is not allowing students to take any additional courses or electives more catered to their academic or research interests. By adjusting these required courses while retaining a requirement to take at least 15 credits of ENTMLGY specific courses, we feel that Masters students will still receive the needed training in the discipline.

Summary of the changes:

Graduate Program in Entomology, M.S. Plan A, Graduate Program in Entomology, M.S. Plan B

Electives: We wish to remove ENTMLGY 5001 as an elective under these degree plans. We would request the addition of ENTMLGY 5150, Pollinator Biology and Conservation (2cr; spring of even years) and ENTMLGY 5121, Insect Pathology (3cr, spring) and ENTMLGY 6702, Entomological Techniques and Data Analysis (2cr, autumn) to the elective lists of the degree plans.

Fundamentals: We would like to adjust the requirement of Masters students to take all fundamental courses to an option of requiring 2 of the 4 courses, as selected by the student. We wish to add a previously elective course, ENTMLGY 5600, Principles and Applications of Insect Pest Management (3cr, spring) as an acceptable fundamental course, and remove ENTMGLY 6320, Experimental Insect Physiology and Molecular Biology (1cr, autumn of odd years) from the fundamental course category and move the course to the elective category.

THE OHIO STATE UNIVERSITY

Professional development: We would like to change the requirement of professional development classes from three courses, to only one course. This results in a change from required 6 credits to 2 credits. We wish to move ENTMLGY 7910, The Nature and Practice of Science (2cr, spring of even years) and ENTMLGY 7930, Scientific Writing and Grant Proposal Development (2cr, autumn of odd years) from the professional development course category to the elective category.

Finally, we wish to add the additional requirement of a minimum of 15 ENTMLGY specific course credit for these degrees. These 15 credits will include the courses taken as part of the fundamental, professional development and supplemental training courses, while ensuring Masters students continue to engage in entomology courses. After taking the required courses (excluding research credit for Masters plan A students) this would result in a needed 4 credits of entomology specific coursework.

After departmental committee approvals, the faculty voted to approve the changes to the electives on February 27th, 2023 and voted to approve the changes to the fundamental and professional development courses and additional entomology coursework totals on August 18th, 2023.

Please let me know if there are additional questions or clarifications needed.

Ellen G Klinger

Ellen Klinger, Associate Professor Entomology

CURRENT

Graduate Program in Entomology: M.S. Plan A

All M.S. students are required to take all four of the following entomology fundamentals courses (11 credits):

Course	Title	Credits	Term
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take all three of the following professional development courses (6 credits):

Course	Title	Credits	Term
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

All M.S. students are required to take all four of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

Course	Title	Credits	Term
ENTMLGY 8000	Entomology Seminar [a]	1	autumn & spring
ENTMLGY 8800	Research and Training Seminar [b]	1	autumn
ENTMLGY 7999	Research in Entomology, MS	(various)	autumn, spring, summer
(various; see Appendix 1)	One course in statistics or data analysis or experimental design (must be upper level [4xxx or higher])	Minimum of 2	(various)

[a] Students are encouraged to enroll in Entomology Seminar every semester, but it is required only once.
[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

In addition to the above requirements, students may choose elective courses based on their interests or recommendations by their advisory committees. These electives may include any of the entomology courses at the 5000 level or higher, or courses offered in other units at the 4000 level or higher. Electives offered by our unit are listed in Appendix 2 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course in systems analysis as offered by other departments, such as one of those shown in Appendix 3 on page 2.

Note that petitions to the Graduate Studies Committee can be made to exclude or replace any required course if the student can provide evidence of a similar course taken at OSU or elsewhere.

The minimum total number of semester credit hours required for Entomology is 30
Total number of required course credits, excluding research credits is 21
Number of credit hours for research and electives is 9

Guidelines for number of credit hours per term:

Position	Term	Minimum required by Graduate School	Recommended by Dept. of Entomology
Graduate Teaching (GT) and Research Associates (GA)	autumn or spring	8	16
	summer	4	8
Graduate Fellow	autumn or spring	12	16
	summer	6	8

Appendix 1: List of some choices for a course in statistics, data analysis, or experimental design*

Course #	Course Name	Credits	Term	Pre-requisite
STAT 5301	Intermediate Data Analysis I	4	autumn, spring	Math 1075 or instructor permission
STAT 5302	Intermediate Data Analysis II	3	autumn, spring	STAT 5299, 5301, or instructor permission
STAT 6450	Applied Regression Analysis	4	autumn	STAT 6201, or equivalent
STAT 6530	Introduction to Spatial Statistics	2	spring	STAT 6450, 6950, or GEOG 883.02; or instructor permission
STAT 6620	Environmental Statistics	2	spring (?)	STAT 5302, 6450, 6910, or GEOG 683 or 833.01; or instructor permission
MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
ENTMLGY 5001	Entomological and Environmental Approaches to Fly Fishing	3	autumn
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6194	Group Studies	1-3	autumn, spring, summer
ENTMLGY 6501	Mentored Teaching in Entomology	1-3	autumn, spring
ENTMLGY 6502	Mentored Extension Experience in Entomology	1-3	autumn, spring, summer
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years
ENTMLGY 7300	Plant Health Management Seminar	1	autumn
ENTMLGY 7890	Special Topics	1-3	any

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

Course #	Course Name	Credits	Term
GEOG 5226	Spatial Simulation and Modeling in GIS	3	autumn
EEOB 7220	Modeling in Evolutionary Ecology	4	autumn
VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring
PLNTPTH 7002	Plant Disease Epidemiology	3	spring

CURRENT WITH CHANGES HIGHLIGHTED

Graduate Program in Entomology: M.S. Plan A

All M.S. students ~~are required to take all four of the~~choose two of the following entomology fundamentals courses (6-~~7~~11 credits):

Course	Title	Credits	Term
ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
~~ENTMLGY 6320~~	~~Experimental Insect Physiology and Molecular Biology~~	~~1~~	~~autumn of odd years~~
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take ~~all three of~~ the following professional development course~~s~~ (2~~6~~ credits):

Course	Title	Credits	Term
~~ENTMLGY 7910~~	~~The Nature and Practice of Science~~	~~2~~	~~spring of even years~~
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years
~~ENTMLGY 7930~~	~~Scientific Writing and Grant Proposal Development~~	~~2~~	~~autumn of odd years~~

All M.S. students are required to take all four of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

Course	Title	Credits	Term
ENTMLGY 8000	Entomology Seminar [a]	1	autumn & spring
ENTMLGY 8800	Research and Training Seminar [b]	1	autumn
ENTMLGY 7999	Research in Entomology, MS	(various)	autumn, spring, summer
(various; see Appendix 1)	One course in statistics or data analysis or experimental design (must be upper level [4xxx or higher])	Minimum of 2	(various)

[a] Students are encouraged to enroll in Entomology Seminar every semester, but it is required only once.
[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

Including the above requirements, students must complete at least 15 total credits of entomology specific coursework, excluding research (ENTMLGY 7999). ~~In addition to the above requirements, s~~Students may choose additional elective courses based on their interests or recommendations by their advisory committees. These electives may include any of the entomology courses at the 5000 level or higher, or courses offered in other units at the 4000 level or higher. Electives offered by our unit are listed in Appendix 2 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course in systems analysis as offered by other departments, such as one of those shown in Appendix 3 on page 2.

Note that petitions to the Graduate Studies Committee can be made to exclude or replace any required course if the student can provide evidence of a similar course taken at OSU or elsewhere.

The minimum total number of semester credit hours required for Entomology is 30
Total number of required course credits, excluding research credits is 15-17~~21~~
Number of credit hours for research and electives is 13-15~~9~~

Guidelines for number of credit hours per term:

Position	Term	Minimum required by Graduate School	Recommended by Dept. of Entomology
Graduate Teaching (GT) and Research Associates (GA)	autumn or spring	8	16
	summer	4	8
Graduate Fellow	autumn or spring	12	16
	summer	6	8

Appendix 1: List of some non ENTMLGY choices for a course in statistics, data analysis, or experimental design*

Course #	Course Name	Credits	Term	Pre-requisite
STAT 5301	Intermediate Data Analysis I	4	autumn, spring	Math 1075 or instructor permission
STAT 5302	Intermediate Data Analysis II	3	autumn, spring	STAT 5299, 5301, or instructor permission
STAT 6450	Applied Regression Analysis	4	autumn	STAT 6201, or equivalent
STAT 6530	Introduction to Spatial Statistics	2	spring	STAT 6450, 6950, or GEOG 883.02; or instructor permission
STAT 6620	Environmental Statistics	2	spring (?)	STAT 5302, 6450, 6910, or GEOG 683 or 833.01; or instructor permission
MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
~~ENTMLGY 5001~~	~~Entomological and Environmental Approaches to Fly Fishing~~	~~3~~	~~autumn~~
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5121	Insect Pathology	3	spring of odd years
ENTMLGY 5150	Pollinator Conservation and Biology	2	spring of even years
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
~~ENTMLGY 5600~~	~~Principles and Applications of Integrated Pest Management~~	~~3~~	~~spring~~
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6194	Group Studies	1-3	autumn, spring, summer
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6501	Mentored Teaching in Entomology	1-3	autumn, spring
ENTMLGY 6502	Mentored Extension Experience in Entomology	1-3	autumn, spring, summer
ENTMLGY 6702	Entomological Techniques and Data Analysis	2	autumn
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years
ENTMLGY 7300	Plant Health Management Seminar	1	autumn
ENTMLGY 7890	Special Topics	1-3	any
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

Course #	Course Name	Credits	Term

GEOG 5226	Spatial Simulation and Modeling in GIS	3	autumn
EEOB 7220	Modeling in Evolutionary Ecology	4	autumn
VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring
PLNTPTH 7002	Plant Disease Epidemiology	3	spring

PROPOSED

Graduate Program in Entomology: M.S. Plan A

All M.S. students choose two of the following entomology fundamentals courses (6-7 credits):

Course	Title	Credits	Term
ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take the following professional development course (2 credits):

Course	Title	Credits	Term
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years

All M.S. students are required to take all four of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

Course	Title	Credits	Term
ENTMLGY 8000	Entomology Seminar [a]	1	autumn & spring
ENTMLGY 8800	Research and Training Seminar [b]	1	autumn
ENTMLGY 7999	Research in Entomology, MS	(various)	autumn, spring, summer
(various; see Appendix 1)	One course in statistics or data analysis or experimental design (must be upper level [4xxx or higher])	Minimum of 2	(various)

[a] Students are encouraged to enroll in Entomology Seminar every semester, but it is required only once.
[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

Including the above requirements, students must complete at least 15 total credits of entomology specific coursework, excluding research (ENTMLGY 7999). Students may choose additional elective courses based on their interests or recommendations by their advisory committees. These electives may include any of the entomology courses at the 5000 level or higher, or courses offered in other units at the 4000 level or higher. Electives offered by our unit are listed in Appendix 2 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course in systems analysis as offered by other departments, such as one of those shown in Appendix 3 on page 2.

Note that petitions to the Graduate Studies Committee can be made to exclude or replace any required course if the student can provide evidence of a similar course taken at OSU or elsewhere.

The minimum total number of semester credit hours required for Entomology is 30
Total number of required course credits, excluding research credits is 15-17
Number of credit hours for research and electives is 13-15

Guidelines for number of credit hours per term:

Position	Term	Minimum required by Graduate School	Recommended by Dept. of Entomology
Graduate Teaching (GT) and Research Associates (GA)	autumn or spring	8	16
	summer	4	8
Graduate Fellow	autumn or spring	12	16
	summer	6	8

Appendix 1: List of some non ENTMLGY choices for a course in statistics, data analysis, or experimental design*

Course #	Course Name	Credits	Term	Pre-requisite
STAT 5301	Intermediate Data Analysis I	4	autumn, spring	Math 1075 or instructor permission
STAT 5302	Intermediate Data Analysis II	3	autumn, spring	STAT 5299, 5301, or instructor permission
STAT 6450	Applied Regression Analysis	4	autumn	STAT 6201, or equivalent
STAT 6530	Introduction to Spatial Statistics	2	spring	STAT 6450, 6950, or GEOG 883.02; or instructor permission
STAT 6620	Environmental Statistics	2	spring (?)	STAT 5302, 6450, 6910, or GEOG 683 or 833.01; or instructor permission
MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5121	Insect Pathology	3	spring of odd years
ENTMLGY 5150	Pollinator Conservation and Biology	2	spring of even years
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6194	Group Studies	1-3	autumn, spring, summer
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6501	Mentored Teaching in Entomology	1-3	autumn, spring
ENTMLGY 6502	Mentored Extension Experience in Entomology	1-3	autumn, spring, summer
ENTMLGY 6702	Entomological Techniques and Data Analysis	2	autumn
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years
ENTMLGY 7300	Plant Health Management Seminar	1	autumn
ENTMLGY 7890	Special Topics	1-3	any
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

Course #	Course Name	Credits	Term
GEOG 5226	Spatial Simulation and Modeling in GIS	3	autumn
EEOB 7220	Modeling in Evolutionary Ecology	4	autumn

VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring
PLNTPTH 7002	Plant Disease Epidemiology	3	spring

CURRENT

Graduate Program in Entomology: M.S. Plan B

All M.S. students are required to take all four of the following entomology fundamentals courses (11 credits):

Course	Title	Credits	Term
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take all three of the following professional development courses (6 credits):

Course	Title	Credits	Term
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

All M.S. students are required to take all three of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

Course	Title	Credits	Term
ENTMLGY 8000	Entomology Seminar [a]	1	autumn & spring
ENTMLGY 8800	Research and Training Seminar [b]	1	autumn
(various; see Appendix 1)	One course in statistics or data analysis or experimental design (must be upper level [4xxx or higher])	Minimum of 2	(various)

[a] Students are encouraged to enroll in Entomology Seminar every semester, but it is required only once.
[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

The final 9 credits are elective courses. Students may take elective courses from the approved list of electives offered by our unit, provided in Appendix 2 on page 2, or from the list of Systems Analysis courses, provided in Appendix 3 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course (up to 4 credits) in Systems Analysis as offered by other departments, such as one of those shown in Appendix 3.

Note that petitions to the Graduate Studies Committee can be made to exclude or replace any required course if the student can provide evidence of a similar course taken at OSU or elsewhere.

The minimum total number of semester credit hours required for Entomology is 30
Total number of required course credits is 21
Number of credit hours for electives is 9

Guidelines for number of credit hours per term:

Position	Term	Minimum required by Graduate School	Recommended by Dept. of Entomology
Graduate Teaching (GT) and Research Associates (GA)	autumn or spring	8	16
	summer	4	8
Graduate Fellow	autumn or spring	12	16
	summer	6	8

A**ppendix 1: List of some choices for a course in statistics, data analysis, or experimental design***

Course #	Course Name	Credits	Term	Pre-requisite
STAT 5301	Intermediate Data Analysis I	4	autumn, spring	Math 1075 or instructor permission
STAT 5302	Intermediate Data Analysis II	3	autumn, spring	STAT 5299, 5301, or instructor permission
STAT 6450	Applied Regression Analysis	4	autumn	STAT 6201, or equivalent
STAT 6530	Introduction to Spatial Statistics	2	spring	STAT 6450, 6950, or GOEG 883.02; or instructor permission
STAT 6620	Environmental Statistics	2	spring (?)	STAT 5302, 6450, 6910, or GEOG 683 or 833.01; or instructor permission
MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
ENTMLGY 5001	Entomological and Environmental Approaches to Fly Fishing	3	autumn
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	Autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

Course #	Course Name	Credits	Term
GEOG 5226	Spatial Simulation and Modeling in GIS	3	autumn
EEOB 7220	Modeling in Evolutionary Ecology	4	autumn
VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring
PLATNPATH 7002	Plant Disease Epidemiology	3	spring

CURRENT WITH CHANGES HIGHLIGHTED

Graduate Program in Entomology: M.S. Plan B

All M.S. students are required to choose two of the ~~take all four of the~~ following entomology fundamentals courses (6-7~~11~~ credits):

Course	Title	Credits	Term
ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
~~ENTMLGY 6320~~	~~Experimental Insect Physiology and Molecular Biology~~	~~1~~	~~autumn of odd years~~
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take ~~all three of~~ the following professional development course~~s~~ (2~~6~~ credits):

Course	Title	Credits	Term
~~ENTMLGY 7910~~	~~The Nature and Practice of Science~~	~~2~~	~~spring of even years~~
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years
~~ENTMLGY 7930~~	~~Scientific Writing and Grant Proposal Development~~	~~2~~	~~autumn of odd years~~

All M.S. students are required to take all three of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

Course	Title	Credits	Term
ENTMLGY 8000	Entomology Seminar [a]	1	autumn & spring
ENTMLGY 8800	Research and Training Seminar [b]	1	autumn
(various; see Appendix 1)	One course in statistics or data analysis or experimental design (must be upper level [4xxx or higher])	Minimum of 2	(various)

[a] Students are encouraged to enroll in Entomology Seminar every semester, but it is required only once.
[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

The final 9 credits are elective courses. Including the courses above, students must complete at least 15 total credits of entomology specific coursework. Students may take elective courses from the approved list of electives offered by our unit, provided in Appendix 2 on page 2, or from the list of Systems Analysis courses, provided in Appendix 3 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course (up to 4 credits) in Systems Analysis as offered by other departments, such as one of those shown in Appendix 3.

Note that petitions to the Graduate Studies Committee can be made to exclude or replace any required course if the student can provide evidence of a similar course taken at OSU or elsewhere.

The minimum total number of semester credit hours required for Entomology is 30
Total number of required course credits is 15-17~~21~~
Number of credit hours for electives is 13-15~~9~~

Guidelines for number of credit hours per term:

Position	Term	Minimum required by Graduate School	Recommended by Dept. of Entomology
Graduate Teaching (GT) and Research Associates (GA)	autumn or spring	8	16
	summer	4	8
Graduate Fellow	autumn or spring	12	16
	summer	6	8

Appendix 1: List of some non-ENTMLGY choices for a course in statistics, data analysis, or experimental design*

Course #	Course Name	Credits	Term	Pre-requisite
STAT 5301	Intermediate Data Analysis I	4	autumn, spring	Math 1075 or instructor permission
STAT 5302	Intermediate Data Analysis II	3	autumn, spring	STAT 5299, 5301, or instructor permission
STAT 6450	Applied Regression Analysis	4	autumn	STAT 6201, or equivalent
STAT 6530	Introduction to Spatial Statistics	2	spring	STAT 6450, 6950, or GOEG 883.02; or instructor permission
STAT 6620	Environmental Statistics	2	spring (?)	STAT 5302, 6450, 6910, or GEOG 683 or 833.01; or instructor permission
MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
~~ENTMLGY 5001~~	~~Entomological and Environmental Approaches to Fly Fishing~~	~~3~~	~~autumn~~
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5121	Insect Pathology	3	Spring of odd years
ENTMLGY 5150	Pollinator Conservation and Biology	2	spring of even years
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	Autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
~~ENTMLGY 5600~~	~~Principles and Applications of Integrated Pest Management~~	~~3~~	~~spring~~
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6702	Entomological Techniques and Data Analysis	2	autumn
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

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GEOG 5226	Spatial Simulation and Modeling in GIS	3	autumn

EEOB 7220	Modeling in Evolutionary Ecology	4	autumn
VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring
PLATNPATH 7002	Plant Disease Epidemiology	3	spring

PROPOSED

Graduate Program in Entomology: M.S. Plan B

All M.S. students are required to choose two of the following entomology fundamentals courses (6-7 credits):

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ENTMLGY 5600	Principles and Applications of Integrated Pest Management	3	spring
ENTMLGY 6210	Evolution and Diversity of Insects	4	spring of odd years
ENTMLGY 6310	Insect Physiology and Molecular Biology	3	autumn of odd years
ENTMLGY 6410	Insect Ecology and Evolutionary Processes	3	autumn of even years

All M.S. students are required to take the following professional development course (2 credits):

Course	Title	Credits	Term
ENTMLGY 7920	Presentation Skills for Scientists	2	spring of odd years

All M.S. students are required to take all three of the following supplemental training courses, to instill an understanding of the breadth of the discipline of entomology, and to ensure that students can analyze and interpret data (minimum of 4 credits, plus research credits):

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[b] Students should enroll in Research and Training Seminar the first Autumn semester of their graduate program.

The final 9 credits are elective courses. Including the courses above, students must complete at least 15 total credits of entomology specific coursework. Students may take elective courses from the approved list of electives offered by our unit, provided in Appendix 2 on page 2, or from the list of Systems Analysis courses, provided in Appendix 3 on page 2. We no longer offer our own course in Systems Analysis, but we strongly recommend that our students take a course (up to 4 credits) in Systems Analysis as offered by other departments, such as one of those shown in Appendix 3.

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MOLGEN 5650	Analysis and Interpretation of Biological Data	3	autumn	Math 1149 or 1150 or equiv.
HCS 5887	Introduction to Experimental Design	3	autumn	HCS2260 or other GE data class; or grad standing
HCS 8887	Techniques of Experimental Design	4	spring	MOLGEN 5650; and STAT 5301 or 5299
PLNTPTH 8300	Special Topics: statistics	2	spring	none
ENR 8780	Quantitative Methods for Environment and Natural Resources	3	spring	STAT 5302 or equiv., and grad standing; or instructor permission
ANIMSCI 7000	Applied Biometrics	3	autumn	STAT 5301 or equiv.
GEOG 5100	Spatial Data Analysis	3	autumn	STAT 1450 or above

*note, enrollment in STAT 5760, Statistical Consulting Support, does not fulfill this requirement.

Appendix 2: Electives offered by the Department of Entomology

Course	Title	Credits	Term
ENTMLGY 5060	Practical Experiences in Plant Health: Insects & Diseases of Plants	2	summer
ENTMLGY 5121	Insect Pathology	3	Spring of odd years
ENTMLGY 5150	Pollinator Conservation and Biology	2	spring of even years
ENTMLGY 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	spring of odd years
ENTMLGY 5350.01	Taxonomy and Behavior of Aquatic Invertebrates	3	Autumn of even years
ENTMLGY 5490	Insect Behavior: Mechanisms and Function	3	spring of odd years
ENTMLGY 5500	Biological Control of Arthropod Pests	3	spring
ENTMLGY 5604	Capstone Course: Problem-Based Studies in Plant Health	2	spring
ENTMLGY 5605	Vector Biology and Vector Borne Diseases	3	autumn
ENTMLGY 5608	Turfgrass Insect and Mite Pests: Identification, Biology and Management	2	spring
ENTMLGY 5609	Landscape Ornamental Plant Insect and Mite Pests – Identification, Biology and Management	3	
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3	autumn
ENTMLGY 5800	Pesticide Science	3	autumn, spring
ENTMLGY 6193	Individual Studies	1-6	autumn, spring, summer
ENTMLGY 6320	Experimental Insect Physiology and Molecular Biology	1	autumn of odd years
ENTMLGY 6702	Entomological Techniques and Data Analysis	2	autumn
ENTMLGY 6703	Molecular Techniques and Data Analysis	2	spring of even years
ENTMLGY 7910	The Nature and Practice of Science	2	spring of even years
ENTMLGY 7930	Scientific Writing and Grant Proposal Development	2	autumn of odd years

Appendix 3: List of some choices for an elective course in systems analysis; others also possible.

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EEOB 7220	Modeling in Evolutionary Ecology	4	autumn
VETPREV 8830	Modeling Transmission Processes and Control of Infectious Diseases in Humans and Animals	3	autumn
PUBH-EPI 5421	Mathematics of Infectious Disease Dynamics	3	spring

PLATNPATH 7002	Plant Disease Epidemiology	3	spring

THE OHIO STATE UNIVERSITY

Curriculum Proposal Checklist

Title of Program: Graduate Program in Entomology, MS Plan A

Effective term: Autumn 2024 **College:** Food, Agricultural, and Environmental Sciences

New/Establish: ☐ **Secondary Major Eligible:** ☐ **Academic Unit:** Entomology

Revise: ☑ **50% Revision:** ☐ **Mark Up:** ☐ **Program Contact:** klinger.80@osu.edu

Terminate: ☐ **Suspend:** ☐ **Certificate Category*:**

Degree/Credential: Master of Science

Program of Study : Graduate Program **Title:** Entomology

Code:

Program Focus*: Option Plan A (thesis)

Credit hours to degree/credential: 30 **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: We need to update our electives on this degree to improve transparency of coursework offered. Electives removed have not been taught for at least 5 years with no future plan to teach and new courses have successfully been taught at least once and plans are to continue offering.

In addition we would like to increase the flexibility of coursework for Masters students,. Currently students have very little flexibility outside of required courses and are struggling to schedule and complete the coursework in two years. We would like to lessen the number of prescribed coursework to allow students to specialize and take courses in their research interest area, and increase flexibility in choice when scheduling coursework.

Student Curriculum Sheet Required: ☐

Four Year (or appropriate) Plan: ☐

Academic Unit Curriculum Committee approval date: 8/18/23

College Curriculum Committee approval date: 9/29/23

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

THE OHIO STATE UNIVERSITY

Curriculum Proposal Checklist

Title of Program: Graduate Program in Entomology, MS Plan B

Effective term: Spring 2024 **College:** Food, Agricultural, and Environmental Sciences

New/Establish: ☐ **Secondary Major Eligible:** ☐ **Academic Unit:** Entomology

Revise: ☑ **50% Revision:** ☐ **Mark Up:** ☐ **Program Contact:** klinger.80@osu.edu

Terminate: ☐ **Suspend:** ☐ **Certificate Category*:**

Degree/Credential: Master of Science

Program of Study : Graduate Program **Title:** Entomology

Code:

Program Focus*: Option Plan B (non-thesis)

Credit hours to degree/credential: 30 **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: We need to update our electives on this degree to improve transparency of coursework offered. Electives removed have not been taught for at least 5 years with no future plan to teach and new courses have successfully been taught at least once and plans are to continue offering.

Student Curriculum Sheet Required: ☑

Four Year (or appropriate) Plan: ☐

Academic Unit Curriculum Committee approval date: 2/27/23

College Curriculum Committee approval date: 6/15/23

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