

Environmental, Soil and Water Sciences

Degree Offered:

- Master of Science with a major in Environmental, Soil and Water Sciences

A candidate for the M.S. degree in Environmental, Soil, and Water Sciences must meet all University, College, Division, and Program requirements as outlined in the WVU Graduate Catalog.

Program Requirements

All M.S. degree candidates are required to follow a planned program of study. The student develops the plan of study during their first year in the program in conjunction with the graduate committee. The plan must be approved by the Director of the Division and the Associate Dean for Academic Affairs of the Davis College.

Thesis Option:

A minimum cumulative GPA of 3.0 is required in all courses applied toward degree requirements.

Select one of the following:		3
STAT 511	Statistical Methods 1	
BIOS 601 & BIOS 602	Applied Biostatistics 1 and Applied Biostatistics Lab	
Select one of the following:		3
STAT 512	Statistical Methods 2	
BIOS 603 & BIOS 604	Applied Biostatistics 2 and Applied Biostatistics 3	
Seminar		3
AGRN 796	Graduate Seminar	
Research		6
AGRN 797	Research	
Discipline-Oriented Coursework		15
(AGRN, AEM, BIOL, ENVP, GEOG, GEOL, PLSC, RESM, ENGR, CE, FHYD, FMAN, FOR, MINE, GEN)		
Total Hours		30

Non-Thesis Option:

A minimum cumulative GPA of 3.0 is required in all courses applied toward degree requirements.

Select one of the following:		3
STAT 511	Statistical Methods 1	
STAT 512	Statistical Methods 2	
BIOS 601 & BIOS 602	Applied Biostatistics 1 and Applied Biostatistics Lab	
BIOS 603 & BIOS 604	Applied Biostatistics 2 and Applied Biostatistics 3	
Graduate Chemistry/Biochemistry Course		3
AGBI 610	General Biochemistry	
AGBI 612	General Biochemistry	
AGRN 516	Soil Chemistry	
Seminar		3
AGRN 796	Graduate Seminar	
Teaching Practicum		2
AGRN 790	Teaching Practicum	
Discipline-Oriented Coursework		15
(AGRN, AEM, BIOL, ENVP, GEOG, GEOL, PLSC, RESM, ENGR, CE, FHYD, FMAN, FOR, MINE, GEN)		
Independent Study		3
AGRN 795	Independent Study	

- * Students must complete a minimum of 30 total hours, of which at least 24 hours must be coursework other than research, thesis, project, internship, etc. credits.

Major Learning Outcomes

ENVIRONMENTAL, SOIL AND WATER SCIENCES

Students will acquire fundamental knowledge of agronomy and soil science.

Students will acquire detailed knowledge of their particular subdiscipline or research area, including the scientific literature fundamental to their discipline and the ability to stay current on scientific literature.

Students will acquire technical skills in the field and laboratory.

Students will develop the ability to communicate in writing and orally about scientific concepts and the results of their research.

Students will develop the ability to design, conduct, and interpret the results of experiments.

AGRONOMY COURSES

AGRN 516. Soil Chemistry. 3 Hours.

PR: AGRN 410. An analysis of the important reactions that occur in soils; thermodynamic and kinetic aspects of these reactions and application to modern problems in soil chemistry. (3 hr. lec.).

AGRN 525. Forage Harvesting and Storage. 3 Hours.

PR: AGRN 454 or Consent. Advanced study of processes associated with harvesting and storage of forages. (3 hr. lec.).

AGRN 552. Pedology. 3 Hours.

PR: AGRN 417 or Consent. Genesis and evolution of soils considered as natural bodies; including both macro-and micromorphological properties. Week-long field trip required at student's expense. (2 hr. lec., 1 hr. lab.).

AGRN 554. Pasture Management and Utilization. 3 Hours.

PR: AGRN 454 and ANNU 260 or consent. Advanced study of pastures and their management and utilization with emphasis on temperate species. (3 hr. lec.).

AGRN 591A-Z. Advanced Topics. 1-6 Hours.

PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

AGRN 592A-Z. Directed Study. 1-6 Hours.

Directed study, reading, and/or research.

AGRN 593A-Z. Special Topics. 1-6 Hours.

A study of contemporary topics selected from recent developments in the field.

AGRN 594A-Z. Seminar. 1-6 Hours.

Special seminars arranged for advanced graduate students.

AGRN 595. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

AGRN 691A-Z. Advanced Topics. 1-6 Hours.

PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

AGRN 692A-Z. Directed Study. 1-6 Hours.

Directed study, reading, and/or research.

AGRN 693A-Z. Special Topics. 1-6 Hours.

A study of contemporary topics selected from recent developments in the field.

AGRN 694A-Z. Seminar. 1-6 Hours.

Special seminars arranged for advanced graduate students.

AGRN 695. Independent Study. 1-6 Hours.

Faculty-supervised study of topics not available through regular course offerings.

AGRN 696. Graduate Seminar. 1 Hour.

PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

AGRN 697. Research. 1-15 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

AGRN 698. Thesis or Dissertation. 1-6 Hours.

PR: Consent. This is an optional course for programs that wish to provide formal supervision is needed during the writing of student reports (698). theses (698), or dissertations (798). (Grading is Normal.).

AGRN 699. Graduate Colloquium. 1-6 Hours.

PR: Consent. For graduate students not seeking coursework credit but who wish to meet residency requirements, use the University's facilities, and participate in its academic and cultural programs. Note: Graduate students who are not actively involved in coursework or research are entitled, through enrollment in their department's 699/799 Graduate Colloquium, to consult with graduate faculty, participate in both formal and informal academic activities sponsored by their program, and retain all of the rights and privileges of duly enrolled students. Grading is Normal; colloquium credit may not be counted against credit requirements for masters programs. Registration for one credit of 699/799 graduate colloquium satisfies the University requirement of registration in the semester in which graduation occurs.

AGRN 710. Soil Testing and Plant Analysis. 3 Hours.

PR: AGRN 210 and BIOL 350, or Consent. Influence of soil chemical and physical properties on availability of plant nutrients; intensive study of individual plant nutrients and interactions of nutrients in soils and crops; and intensive study of methods used to test soils and analyze plants for nutrients and other metals. (2 hr. lec., 1 hr. lab.).

AGRN 790. Teaching Practicum. 1-3 Hours.

PR: Consent. Supervised practice in college teaching of agronomy. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.).

AGRN 791A-Z. Advanced Topics. 1-6 Hours.

PR: Consent. Investigation in advanced topics that are not covered in regularly scheduled courses.

AGRN 792A-Z. Directed Study. 1-6 Hours.

Directed study, reading, and/or research.

AGRN 793A-Z. Special Topics. 1-6 Hours.

A study of contemporary topics selected from recent developments in the field.

AGRN 794A-Z. Seminar. 1-6 Hours.

Special seminars arranged for advanced graduate students.

AGRN 795. Independent Study. 1-9 Hours.

Faculty supervised study of topics not available through regular course offerings.

AGRN 796. Graduate Seminar. 1 Hour.

PR: Consent. Each graduate student will present at least one seminar to the assembled faculty and graduate student body of his or her program.

AGRN 797. Research. 1-15 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

AGRN 798. Thesis or Dissertation. 1-6 Hours.

PR: Consent. This is an optional course for programs that wish to provide formal supervision during the writing of student reports (698), or dissertations (798). Grading is normal.

AGRN 799. Graduate Colloquium. 1-6 Hours.

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PLANT SCIENCE COURSES**PLSC 547. Applied Wetlands Ecology and Management. 3 Hours.**

The management and ecology of wetland vegetation, soils, hydrology, and wildlife. (Cross listed as WMAN 547 and CE 547.).

PLSC 550. Grants and Grantsmanship. 2 Hours.

A course covering all steps of grant preparation, application, submission and review process.

PLSC 553. Organic Crop Production. 3 Hours.

PR: PLSC 206 and AGRN 202 and AGRN 203 or consent. Principles, practices, history, philosophy and economics of organic farming and gardening. Crop/livestock systems, national and international research on organic production. (Students may not receive credit for both PLSC 453 and PLSC 553).

PLSC 560. Plant Biochemistry. 3 Hours.

PR: (CHEM 231 or (CHEM 233 and CHEM 234)) and BIOL 219 or consent. Study of the biochemical processes and biosynthetic pathways leading to the formation of desirable plant products such as those used in food, feed, fiber, fuel and medicinal applications. (Credit cannot be received for both PLSC 460 and PLSC 560).

PLSC 591. Advanced Topics. 1-6 Hours.

PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 592A-Z. Directed Study. 1-6 Hours.

Directed study, reading, or research.

PLSC 593A-Z. Special Topics. 1-6 Hours.

A study of contemporary topics selected from recent developments in the field.

PLSC 595. Independent Study. 1-6 Hours.

Faculty supervised study of topics not available through regular course offerings.

PLSC 692A-Z. Directed Study. 1-6 Hours.

Directed study, reading, and/or research.

PLSC 693A-B. Plant Biochemistry and Metabolism. 1-6 Hours.

PLSC 697. Research. 1-15 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading will be S/U.).

PLSC 790. Teaching Practicum. 1-3 Hours.

PR: Consent. Supervised practice in college teaching of plant science. Note: This course is intended to insure that graduate assistants are adequately prepared and supervised when they are given college teaching responsibility. It will also present a mechanism for students not on assistantships to gain teaching experience. (Grading will be S/U.).

PLSC 791. Advanced Topics. 1-6 Hours.

PR: Consent. Investigation of advanced topics not covered in regularly scheduled courses.

PLSC 792. Directed Study. 1-6 Hours.

Directed study, reading, and/or research.

PLSC 793A-Z. Special Topics. 0-6 Hours.

A study of contemporary topics selected from recent developments in the field.

PLSC 794A-Z. Seminar. 1-6 Hours.

Seminars arranged for advanced graduate students.

PLSC 795. Independent Study. 1-9 Hours.

Faculty supervised study of topics not available through regular course offerings.

PLSC 796A-B. Graduate Seminar. 1 Hour.

PR: Consent. It is anticipated that each graduate student will present at least one seminar to the assembled faculty and graduate student body of his/her program.

PLSC 797. Research. 1-15 Hours.

PR: Consent. Research activities leading to thesis, problem report, research paper or equivalent scholarly project, or a dissertation. (Grading may be S/U.).

PLSC 798. Thesis or Dissertation. 1-6 Hours.

PR: Consent. This is an optional course for programs that wish to provide formal supervision during the writing of student reports (698), or dissertations (798). Grading is normal.

PLSC 799. Graduate Colloquium. 1-6 Hours.

PR: Consent. For graduate students not seeking coursework credit but who wish to meet residency requirements, use of the University's facilities, and participate in its academic and cultural programs. Note: Graduate students who are not actively involved in coursework or research are entitled, through enrollment in their department's 699/799 Graduate Colloquium to consult with graduate faculty, participate in both formal and informal academic activities sponsored by their program, and retain all of the rights and privileges of duly enrolled students. Grading is P/F; colloquium credit may not be counted against credit requirements for masters programs. Registration for one credit of 699/799 graduate colloquium satisfies the University requirement of registration in the semester in which graduation occurs.