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| For Academic Affairs and Research Use Only |
| CIP Code:  |  |
| Degree Code: |  |

**New Course Proposal Form**

**[] Undergraduate Curriculum Council**

**[x] Graduate Council**

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| **[x] New Course or [ ]Experimental Course (1-time offering) (Check one box)** |

Signed paper copies of proposals submitted for consideration are no longer required. Please type approver name and enter date of approval.

Email completed proposals to curriculum@astate.edu for inclusion in curriculum committee agenda.

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
| Donald Kennedy 3/5/2019**Department Chair:**  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Head of Unit (If applicable)**   |
| Steven Green 3/1/2019**College Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Undergraduate Curriculum Council Chair** |
| Timothy Burcham 3/8/2019**College Dean** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Graduate Curriculum Committee Chair** |
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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Enter date |

**General Education Committee Chair (If applicable)**   | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Vice Chancellor for Academic Affairs** |

1. Contact Person (Name, Email Address, Phone Number)

John Nowlin, jnowlin@astate.edu, (870) 972-3468

2. Proposed Starting Term and Bulletin Year

Fall 2019

3. Proposed Course Prefix and Number (Confirm that number chosen has not been used before. For variable credit courses, indicate variable range. *Proposed number for experimental course is 9*. )

AGST 5763

4. Course Title – if title is more than 30 characters (including spaces), provide short title to be used on transcripts. Title cannot have any symbols (e.g. slash, colon, semi-colon, apostrophe, dash, and parenthesis). Please indicate if this course will have variable titles (e.g. independent study, thesis, special topics).

**Understanding Geographic Information Systems**

5. Brief course description (40 words or fewer) as it should appear in the bulletin.

**Methods, concepts, software, analysis and modeling of geospatial data using raster and vector data models for human-environment interactions using geographic information systems (GIS).**

6. Prerequisites and major restrictions. (Indicate all prerequisites. If this course is restricted to a specific major, which major. If a student does not have the prerequisites or does not have the appropriate major, the student will not be allowed to register).

1. **NO** Are there any prerequisites?
	1. If yes, which ones?

Enter text...

* 1. Why or why not?

 Enter text...

1. **NO** Is this course restricted to a specific major?
	1. If yes, which major? Enter text...

7. Course frequency(e.g. Fall, Spring, Summer). *Not applicable to Graduate courses.*

Enter text...

8. Will this course be lecture only, lab only, lecture and lab, activity, dissertation, experiential learning, independent study, internship, performance, practicum, recitation, seminar, special problems, special topics, studio, student exchange, occupational learning credit, or course for fee purpose only (e.g. an exam)? Please choose one.

**Lecture and Lab**

9. What is the grade type (i.e. standard letter, credit/no credit, pass/fail, no grade, developmental, or other [please elaborate])

**Standard letter**

10. **NO** Is this course dual listed (undergraduate/graduate)?

11. **NO** Is this course cross listed?

*(If it is, all course entries must be identical including course descriptions. Submit appropriate documentation for requested changes. It is important to check the course description of an existing course when adding a new cross listed course.)*

**11.1** – If yes, please list the prefix and course number of cross listed course.

 Enter text...

**11.2** – **Yes / No** Are these courses offered for equivalent credit?

Please explain. Enter text...

12. **NO** Is this course in support of a new program?

a. If yes, what program?

 Enter text...

13. **NO** Does this course replace a course being deleted?

a. If yes, what course?

Enter text...

14. **NO** Will this course be equivalent to a deleted course?

a. If yes, which course?

Enter text...

15. **YES** Has it been confirmed that this course number is available for use?

 *If no: Contact Registrar’s Office for assistance.*

16. **NO** Does this course affect another program?

If yes, provide confirmation of acceptance/approval of changes from the Dean, Department Head, and/or Program Director whose area this affects.

Enter text...

**Course Details**

17. Outline (The course outline should be topical by weeks and should be sufficient in detail to allow for judgment of the content of the course.)

**CLASS SCHEDULE** (tentative)

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| Week | Chang…Geographic Information Systems | GIS Tutorial 1 for ArcGIS Pro |
| 1 | Preface & CH1 Introduction |   |
| 2 | CH2 Coordinate Systems |   |
| 3 | CH3 Vector Data Model |   |
| 4 | CH4 Raster Data Model |   |
| 5 | CH8 Attribute Data Management |   |
| 6 | CH9 Data Display & Cartography |   |
| 7 | CH11 Vector Data Analysis |   |
| 8 | CH12 Raster Data Analysis |   |
| 9 |  | CH1 The ArcGIS Platform & CH2 Map Design |
| 10 |  | CH3 Map outputs for GIS projects |
| 11 |   | CH4 File Geodatabases |
| 12 |   | CH5 Spatial Data |
| 13 |   | CH7 Digitizing |
| 14 |   | CH6 Geoprocessing |
| 15 |  | CH9 Spatial Analysis |
| 16 |  | CH10 Raster GIS |

18. Special features (e.g. labs, exhibits, site visitations, etc.)

Enter text...

19. Department staffing and classroom/lab resources

College of Agriculture, Ag Systems Technology area emphasis

1. Will this require additional faculty, supplies, etc.?

 **NO**

20. **NO** Does this course require course fees?

 *If yes: please attach the New Program Tuition and Fees form, which is available from the UCC website.*

**Course Justification**

21. Justification for course being included in program. Must include:

 a. Academic rationale and goals for the course (skills or level of knowledge students can be expected to attain)

 This course fills a gap in a graduate course which introduces modern GIS software (ArcGIS Desktop - ArcGIS Pro)

b. How does the course fit with the mission established by the department for the curriculum? If course is mandated by an accrediting or certifying agency, include the directive.

 Helps Graduate Students across the university learn about modern GIS software.

c. Student population served.

**All Graduate Students with a need to incorporate GIS into their research projects**

d. Rationale for the level of the course (lower, upper, or graduate).

This course is needed for students who will utilize GIS in their graduate research projects.

**Assessment**

**Relationship with Current Program-Level Assessment Process**

22. What is/are the intended program-level learning outcome/s for students enrolled in this course? Where will this course fit into an already existing program assessment process?

 Students will develop advanced skills in critical thinking and analysis applied to solve relevant problems.

23. Considering the indicated program-level learning outcome/s (from question #23), please fill out the following table to show how and where this course fits into the program’s continuous improvement assessment process.

*For further assistance, please see the ‘Expanded Instructions’ document available on the UCC - Forms website for guidance, or contact the Office of Assessment at 870-972-2989.*

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| **Program-Level Outcome 1 (from question #23)** | Students will demonstrate depth in a concentration area to support their professional goals. |
| Assessment Measure | Successful development (Pass in a Pass/Fail class) of a work plan related to the student’s professional goals and interests with input and review by major advisor and instructor |
| Assessment Timetable | Fall semesters of even years |
| Who is responsible for assessing and reporting on the results? | Instructor; review by CoAT Graduate Committee and CoAT Assessment Committee |

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| **Program-Level Outcome 2 (from question #23)** | Students will demonstrate both verbal and written communication skills. |
| Assessment Measure | Successful completion of written work plan with approval by major advisor and instructor; Successful (Pass) slideshow presentation of work plan or thesis to faculty and students in a seminar setting. |
| Assessment Timetable | Spring semesters of even years |
| Who is responsible for assessing and reporting on the results? | Instructors; review by CoAT Graduate Committee and CoAT Assessment Committee |
| **Program-Level Outcome 3 (from question #23)** | Students will develop advanced skills in critical thinking and analysis applied to solve relevant problems. |
| Assessment Measure | Successful completion of the Comprehensive/Final Defense Exam in front of graduate advisory committee |
| Assessment Timetable | Spring semesters of odd years |
| Who is responsible for assessing and reporting on the results? | Major advisors; review by CoAT Graduate Committee and CoAT Assessment Committee |

 *(Repeat if this new course will support additional program-level outcomes)*

 **Course-Level Outcomes**

24. What are the course-level outcomes for students enrolled in this course and the associated assessment measures?

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| **Outcome 1** | Students will be able to make a map in ARC GIS |
| Which learning activities are responsible for this outcome? | Lab exercises |
| Assessment Measure  | Practical mapping exercises on midterm and final exam graded with rubric. |

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| **Outcome 2** | Students will be able to use basic analysis methods for raster and vector based data |
| Which learning activities are responsible for this outcome? | Lab exercises |
| Assessment Measure  | Practical raster and vector analysis in lab exercises graded with rubric. |

*(Repeat if needed for additional outcomes)*

**Bulletin Changes**

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| **Instructions**  |
| **Please visit** [**http://www.astate.edu/a/registrar/students/bulletins/index.dot**](http://www.astate.edu/a/registrar/students/bulletins/index.dot) **and select the most recent version of the bulletin. Copy and paste all bulletin pages this proposal affects below. Follow the following guidelines for indicating necessary changes.** **\*Please note: Courses are often listed in multiple sections of the bulletin. To ensure that all affected sections have been located, please search the bulletin (ctrl+F) for the appropriate courses before submission of this form.** - Deleted courses/credit hours should be marked with a red strike-through (~~red strikethrough~~)- New credit hours and text changes should be listed in blue using enlarged font (blue using enlarged font). - Any new courses should be listed in blue bold italics using enlarged font (***blue bold italics using enlarged font***)*You can easily apply any of these changes by selecting the example text in the instructions above, double-clicking the ‘format painter’ icon 🡪 , and selecting the text you would like to apply the change to.* *Please visit* [*https://youtu.be/yjdL2n4lZm4*](https://youtu.be/yjdL2n4lZm4) *for more detailed instructions.* |

Multiple bulletin changes associated with an AGST program realignment are being submitted. Below is the primary program for these changes which is Pgs. 295 & 296 of the 2018-2019 Graduate Bulletin. Other changes are addressed in numerous proposals submitted concurrently.

\*Due to the high number of concurrent changes, for clarity, these revisions are highlighted at the end on the bulletin page(s).

## Pgs 295 & 296

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**Agricultural Systems Technologies (AGST)**

**AGST 5003. Modern Irrigation Systems** ~~The course will cover m~~ Methods, equipment, current issues and future directions of irrigation, irrigation design and scheduling, drainage systems, irrigation measurements, performance evaluation, and impact on productive and sustainable agriculture. ~~Prerequisite, MATH 1033 and PSSC 2813.~~ Dual listed as AGST 4003.

**AGST 501V~~3~~. Special Topics Graduate Seminar** Contemporary topics in Agricultural Systems Technology. **~~Precision Application Technology~~** ~~Techniques in soil and crop homogeneity detection and variable-rate precision application of crop inputs to increase productivity and enhance environmental sustainability. Dual listed with AGST 401~~**~~V~~**~~3.~~ **~~Fall,~~** ~~Spring~~**~~, Summer.~~**

***AGST 5022. Irrigation Technology Tools*** *Technical tools and software related to irrigation system hydraulic design and management. Dual listed with AGST 4022. Prerequisites: AGST 5003 or AGST 4003 AND AGST 5763 or AGST 4543.*

***AGST 5501. Agricultural Decision Analysis*** *Hands-on experience with cloud/desktop software, spatial algorithms and image processing of georeferenced data obtained from diverse sources, such as human scouts, ground and equipment sensors, and unmanned aerial systems.**Dual listed with AGST 4501. Prerequisite: AGST 5763 or AGST 4543.*

***AGST 5511. Unmanned Aircraft Systems*** *Software and mobile applications for designing flight missions, collecting data, and analyzing/interpreting imagery for agricultural practices. Intended to prepare students for the Federal Aviation Administration (FAA) remote pilot license exam. Dual listed with AGST 4511. Prerequisites: AGST 5763 or AGST 4543 AND AGST 5773 or AGST 4773.*

***AGST 5763 Understanding Geographic Information Systems*** *Methods, concepts, software, analysis and modeling of geospatial data using raster and vector data models for human-environment interactions using geographic information systems (GIS).*

**AGST 5773. Remote Sensing** ~~The course will cover the image acquisition and image processing methods using ERDAS Imagine software as the analytical assessment package.~~ Passive and active means of aerial and satellite image acquisition, processing, analysis, and interpretation for research and decision making in agricultural, environmental, and natural resource applications. Dual listed with AGST 4473.

**AGST 6543. Geospatial Data and Models ~~Advanced Geographic Information Systems~~** ~~Advanced GIS using Arc GIS software as the analytical assessment package~~. Geospatial data frameworks and methods including site suitability and hydrological modeling. Prerequisite~~s: PSSC 3543 Fundamental of GIS and GPS or instructors consent.~~*AGST 5763 or AGST 4543.*

***AGST 6843 Applied Geospatial Research*** *Design and execute applied geospatial research into Human-Environment Interactions. Prerequisites: AGST 5773 or AGST 4773; AGST 6543, or instructor approval.*

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