# Proposal Form For Addition And Revision Of Courses

1. Proposing College / School: Agriculture  
   Department: Agronomy and Soils  

2. Course Prefix and Number: AGRN 5010/6010  
3. Effective Term: SP 2013  

4. Course Title: Analysis of Plant, Soil, and Animal Data  
   Abbreviated Title (30 characters or less):  

5. Requested Action:  
   • Renumber a Course  
   • Add a Course  
   • Revise a Course  
   Current Course Number:  
   Proposed Course Number:  
   Type of Revision:  

6. Course Credit:  
   Contact/Group Hours  
   Scheduled Type  
   (e.g.: Lab, Lecture, Practicum, Directed Study)  
   Weekly or Per Term? Credit Hours Anticipated Enrollment  
   Maximum Hours (Repeatability):  
<table>
<thead>
<tr>
<th>Contact/Group Hours</th>
<th>Scheduled Type</th>
<th>Weekly or Per Term?</th>
<th>Credit Hours</th>
<th>Anticipated Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Lecture</td>
<td></td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>
   Total Credit Hours: 3  

7. Grading Type:  
   • Regular (ABCDF)  
   • Satisfactory/Unsatisfactory (S/U)  
   • Audit  

8. Prerequisites/Corequisites:  
   Use "P:" to indicate a prerequisite, "C:" to indicate a corequisite, and "P/C:" to indicate a prerequisite with concurrency.  
   MATH 1130 or STAT 2510  

9. Restrictions: List specific restriction in space above.  
   □ College  
   □ Major  
   □ Standing  
   □ Degree  

10. Course Description:  
    (20 Words or Less; exactly as it should appear in the Bulletin)  
    See attached syllabus  

11. May Count Either:  
    □ or □  
    (Indicate if this particular course cannot be counted for credit in addition to another)  

12. Affected Program(s):  
    (Respond "N/A" if not included in any program; attach memorandum if more space is required)  
    | Program Type | Program Title | Requirement or Elective? |
    |--------------|---------------|--------------------------|
    | □            | MS and PhD in Agronomy | Elective |

13. Overlapping or Duplication of Other Units' Offerings:  
    (If course is included in any other degree program, is used as an elective frequently by other unit(s), or is in an area similar to that covered by another college/school, attach correspondence with relevant unit)  
   □ Applicable  
   □ Not Applicable
14. Justification:

Research units in the biological sciences have a need for a data analysis course that is tailored to the needs of our students. We currently teach a course (AGRN 7080 - Experimental methods, taught by Dr. van Santen) for which students are quite often unprepared. What is missing in the current statistics course offering is an upper level undergraduate/beginning level graduate course (5000/6000 level). The proposed course will more adequately prepare students to take both STAT 7000 and AGRN 7080. In addition, Dr. van Santen will be using a new text that is directed more toward biological applications, and is of the opinion that it is one of the best of its type ever published and is excited to be using it. Other departments that deal with biological data have expressed their interest and support for this proposed course.

(Include a concise, yet adequate rationale for the addition/revision of the course, citing accreditation, assessments (faculty, graduate, and/or external) where applicable)

15. Resources:

The only resources required is classroom space.

(Indicate whether existing resources such as library materials, classroom/laboratory space, and faculty appointments are adequate to support the proposed addition/revision; if additional resources are required, indicate how such needs will be met, referencing the appropriate level of authorization -- i.e.: Dean -- where necessary; if no additional resources or shifting of resources will be necessary, respond "Not Applicable")

16. Student Learning Outcomes:

Students will demonstrate the ability to critically assess experimental conduct, data analysis, and draw conclusions from such experiments.

(State in measurable terms (reflective of course level) what students should be able to do when they have completed this course)

17. Course Content Outline:

see attached syllabus

(Provide a comprehensive, week-by-week breakdown of course content, including assignment due dates)

18. Assignments / Projects:

see attached syllabus

(List all quizzes, projects, reports, activities and other components of the course grade -- including a brief description of each assignment that clarifies its contribution to the course's learning objectives)

19. Rubric and Grading Scale:

see attached syllabus

(List all components of the course grade -- including attendance and/or participation if relevant -- with point totals for each; indicate point totals and ranges or percentages for grading scale; for S/U grading, detail performance expectations for a passing grade)

20. Justification for Graduate Credit:

see attached syllabus

(Include a brief statement explaining how the course meets graduate educational standards (i.e.: rigorous standards for evaluation, development of critical thinking and analytical skills, etc.))

(Included below are standard statements regarding course policies. If necessary, a statement may be altered to reflect the academic policies of individual faculty members and/or the academic unit or department, provided that there is no conflict with the Tiger Cub, Faculty Handbook, or any existing university policy.)

POLICY STATEMENTS

Attendance: Although attendance is not required, students are expected to attend all classes, and will be held responsible for any content covered in the event of an absence.

Excused Absences: Students are granted excused absences from class for the following reasons: illness of the student or serious illness of a member of the student's immediate family, the death of a member of the student's immediate family, trips for student organizations sponsored by an academic unit, trips for university classes, trips for participation in intercollegiate athletic events, subpoenas for a court appearance, and religious holidays. Students who wish to have an excused absence from class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request, and render a decision. When feasible, the student must notify the instructor prior to the occurrence of any excused absences, but in no case shall such notification occur more than one week after the absence. Appropriate documentation for all excused absences is required. Please see the Tiger Cub for more information on excused absences.

Make-Up Policy: Arrangement to make up a missed major examination (e.g., hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week of the end of the period of the excused absence(s). Except in unusual circumstances, such as the continued absence of the student or the advent of university holidays, a make-up exam will take place within two weeks of the date that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins.
Academic Honesty Policy: All portions of the Auburn University student academic honesty code (Title XII) found in the Tiger Cub will apply to university courses. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

Disability Accommodations: Students who need special accommodations in class, as provided for by the Americans With Disabilities Act, should arrange for a confidential meeting with the instructor during office hours in the first week of classes (or as soon as possible if accommodations are needed immediately). The student must bring a copy of their Accommodation Letter and an Instructor Verification Form to the meeting. If the student does not have these forms, they should make an appointment with the Program for Students with Disabilities, 1286 Haley Center; 844-2096 (V/TT).
1. **Course Title:** Analysis of Plant, Soil, and Animal Data

2. **Credit Hours/Prerequisites, if applicable:** (3) Lec. 3. Pr. MATH 1130 or STAT 2510

   Number of hours of lecture: 37.5/semester
   Number of contact hours: 37.5/semester

3. **Texts or Major Resources:**

4. **Course Description:** Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, hypothesis testing, comparing means, and basic experimental design procedures.

5. **Course Objectives:**
   - Familiarize students with issues of sampling and effective display of data
   - Familiarize students with basic concepts of probability distributions
   - Familiarize students with basic data analysis techniques for discrete data
   - Familiarize students with basic analysis techniques for continuous data
   - Familiarize students with basic experimental design and analysis

6. **Course Content:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Class day</th>
<th>Topic</th>
<th>Textbook Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Statistics and Samples</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>Displaying data</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Describing data</td>
<td>3</td>
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<tr>
<td>2</td>
<td>4</td>
<td>Estimating with uncertainty</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>Probability</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Probability</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
<td>Respond to specific questions from previous lectures</td>
<td></td>
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<tr>
<td>4</td>
<td>8</td>
<td><strong>Midterm 1</strong></td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
<td>Hypothesis testing</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>Analyzing proportions</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>Fitting probability models to frequency data</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>Contingency analysis</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>13</td>
<td>Respond to specific questions from previous lectures</td>
<td></td>
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<tr>
<td>7</td>
<td>14</td>
<td><strong>Midterm 2</strong></td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>15</td>
<td>The normal distribution</td>
<td>11</td>
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<tr>
<td>8</td>
<td>16</td>
<td>Inference for a normal distribution</td>
<td>12</td>
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<tr>
<td>9</td>
<td>17</td>
<td>Comparing two means</td>
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<tr>
<td>9</td>
<td>18</td>
<td>Handling violations of assumptions</td>
<td>13</td>
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<tr>
<td>10</td>
<td>19</td>
<td>Respond to specific questions from previous lectures</td>
<td></td>
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<tr>
<td>10</td>
<td>20</td>
<td><strong>Midterm 3</strong></td>
<td>14</td>
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<tr>
<td>11</td>
<td>21</td>
<td>Designing experiments</td>
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<tr>
<td>11</td>
<td>22</td>
<td>Designing experiments</td>
<td>14</td>
</tr>
<tr>
<td>12</td>
<td>23</td>
<td>Comparing means of more than two groups</td>
<td>15</td>
</tr>
</tbody>
</table>
7. **Course Requirements/Evaluation:**

Undergraduate (5000 level) and graduate (6000 level) will have to fulfill similar general requirements (homework, midterms, and final) but the degree of difficulty will be higher for graduate students. In addition, graduate students will have reading assignments from the primary literature. Specific requirements are outlined below.

**5000 level:**
Attendance of lectures is strongly encouraged but not required for a grade. Course assignments consist of graded homework assignments (25 @ 2 points each), which are handed out one class day and turned in the next. Each assignment consists of a single small problem designed to solidify the concept presented in class that day. Homework constitutes 50% of the course grade. Most homework assignments require only pencil and paper. A few problems late in the semester can be solved using a spreadsheet such as Microsoft EXCEL. There also will be three midterm examinations (10 points each) and one non-cumulative final exam (20 points) for a total of 100 points. The grading policy for undergraduate credit is summarized in the table below.

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<thead>
<tr>
<th>Assignment</th>
<th>N</th>
<th>Points</th>
<th>TTL</th>
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<tbody>
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<td>50</td>
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<td>Midterms</td>
<td>3</td>
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</tr>
<tr>
<td>Final</td>
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<td>20</td>
<td>20</td>
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<td><strong>TOTAL</strong></td>
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<td>100</td>
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<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
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<td>100</td>
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<td>71</td>
<td>80</td>
<td>C</td>
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<tr>
<td>61</td>
<td>70</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 61</td>
<td></td>
<td>F</td>
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</tbody>
</table>

**6000 level:**
Attendance of lectures is strongly encouraged but not required for a grade. Course assignments consist of graded homework assignments (25 @ 1 point each), which are handed out one class day and turned in the next. Each assignment consists of a single small problem designed to solidify the concept presented in class that day. Homework constitutes 25% of the course grade. Most homework assignments require only pencil and paper. A few problems late in the semester can be solved using a spreadsheet such as Microsoft EXCEL. Graduate students also will read and summarize papers from the primary literature (5 @ 5 points each). There also will be three midterm examinations (10 points each) and one non-cumulative final exam (20 points) for a total of 100 points. The grading policy for graduate credit is summarized in the table below.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Homework</td>
<td>25</td>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>Assigned Readings</td>
<td>5</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Midterms</td>
<td>3</td>
<td>10</td>
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</tr>
<tr>
<td>Final</td>
<td>1</td>
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<td><strong>TOTAL</strong></td>
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**Make-Up Policy**
Arrangement to make up missed major examination (e.g. hour exams, mid-term exams) due to properly authorized excused absences must be initiated by the student within one week from the end of the period of the excused absences. Except in unusual circumstances, such as continued absence of the student or the advent of University holidays, a make-up exam will take place within two weeks from the time that the student initiates arrangements for it. Except in extraordinary circumstances, no make-up exams will be arranged during the last three days before the final exam period begins. The format of the make-up exam will be (as specified by instructor).

9. **Academic Honesty Statements:**

**The Auburn University Oath of Honor:**
"In accordance with those virtues of Honesty and Truthfulness set forth in the Auburn Creed, I, as a student and fellow member of the Auburn Family, do hereby pledge that all work is my own, achieved through personal merit and without any unauthorized aid. In the promotion of integrity, and for the betterment of Auburn, I give honor to this, my oath and obligation.

**Plagiarism and Academic Dishonesty:**
Plagiarism is the act of presenting directly or indirectly someone else's work as your own. Plagiarism is a major type of academic dishonesty and will not be tolerated. Similarly, cheating on tests in any way is an intolerable form of academic misconduct. The University’s policy for academic misconduct in the Learner Code of Conduct will be followed for this course (see the Tiger Cub - http://www.auburn.edu/tigercub/handbook.html). If there are any questions regarding its contents students are expected to contact the instructor.

**University Policies not covered in this Syllabus:**
The Tiger Cub Student Handbook (http://www.auburn.edu/tigercub/handbook.html) contains all policies and procedures for Auburn University students. This would include items such as the definition of excused absences, procedures for make-up exams, processes to be followed in cases of academic dishonesty, or any other procedural student/faculty issues at Auburn University. Any policy or procedure inadvertently left off this syllabus will be conducted following Tiger Cub guidelines.

10. **Students with Disabilities Statement:**
Auburn University is committed to providing accommodations and services to learners with documented disabilities. Any learner with a qualified disability which requires accommodations should contact The Program for Learners with Disabilities, 1244 Haley Center, Auburn University, AL 36849, 334-844-2096 (phone), 334-844-2099 (FAX), scw0005@auburn.edu. More information is available on their website at www.auburn.edu/disability. The office will fax or mail the required forms to learners to apply for services. Learners who have questions about their ability to participate in this course should contact the above office in advance to ensure proper accommodations.
11. **Justification for Graduate Credit:**

   a. There currently is no course on the books that provides graduate students with introduction to applied statistical data analysis. This course will prepare them for 7000 level courses.

   b. Requirements of graduate credit will be higher in that the exams will be more difficult than for 5000 level participants. In addition, graduate students will have to read and summarize five papers from the primary literature, which will be selected based on their relevance to statistical analysis of research data. These papers will be selected to fit the research interest of each student.

   c. Evaluation criteria for graduate students are described as in a subsection of section 7 above.

   d. Instructor holds a Level II graduate faculty appointment.
November 29, 2011

David B. Weaver
Professor
Department of Agronomy & Soils
Auburn University, AL 36849

Dear Dr. Weaver,

With this letter, the Department of Entomology and Plant Pathology of the College of Agriculture at Auburn University would like to support Dr. Edzard van Santen’s new course AGRN 5010/6010 Analysis of Plant, Soil, and Animal Data.

This course will promote Auburn University’s mission for increasing undergraduate research, mentoring, and writing, goals which are supported by The Office of Undergraduate Research and The Office of University Writing. Our students must be able to apply solutions to problems, practice critical thinking, and communicate effectively.

We believe that AGRN 5010/6010 will augment the above mentioned undergraduate research efforts by encouraging students to analyze their experimental data, interpret the results, and summarize their findings in a precise manor. The split level course will blend senior undergraduate students and beginning graduate students. This combination will benefit students at both educational levels.

AGRN 5010/6010 Analysis of Plant, Soil, and Animal Data will be a supporting class in which our department’s graduate students will learn the application of data analysis. This class will be a practical one in which students will learn to apply statistics through related computer programs such as SAS and Excel. These skills will help our students prepare for careers in both industry and academia.

In summary, the Department of Entomology and Plant Pathology highly recommends the addition of Dr. Edzard van Santen’s Analysis of Plant, Soil, and Animal Data course to the curriculum for both graduate and undergraduate students.

Sincerely,

Arthur G. Appel
Professor and Chair
Department of Entomology and Plant Pathology
Auburn University
Auburn, Alabama 36849-5413
David B. Weaver, Chair
Curriculum Committee
Department of Agronomy & Soils
201 Funchess Hall
CAMPUS

Dear Dr. Weaver:

This is in regard to the proposal to establish a new course, AGRN 5010/6010, *Analysis of Plant, Soil, and Animal Data*, that would be offered by the Department of Agronomy & Soils beginning in Spring 2013 semester.

I have reviewed the proposal in my capacity as our department’s Graduate Program Officer, as has Dr. Wayne Greene in his capacity as our department head. Furthermore, we formally consulted with several faculty in the department who have major teaching responsibilities in subject areas that rely heavily on statistics (e.g., animal breeding, muscle-foods process control, etc.), as well as informally with a number of faculty more heavily involved in research whose programs require that students be able to critically assess statistical methodology and experimental design as reported in the scientific literature, as well as perform statistical analyses appropriate to their own experimental data.

A consensus emerged from our discussions that the proposed AGRN 5010/6010 will fill the void that currently exists by way of an upper-level undergraduate/beginning-level graduate course that more adequately prepares students for courses such as STAT 7000, AGRN 7080, etc. for which students are more often than not ill-prepared. We are especially enthused by the focus on biological applications in the agricultural sciences.

Thank you for the opportunity to register our unconditional and enthusiastic support for the proposal to establish AGRN 5010/6010.

Sincerely,

[Signature]
Russell B. Muntifering
Professor and Graduate Program Officer
From: Dan Givens
To: Weaver, David
Date: 12/12/2011 10:29 AM
Subject: Re: request for support of new course in AGRN.

Dr. Weaver,

I fully support development and implementation of this course. I consider that a course focused on the analysis of biological data would be a valuable addition to the curriculum.

Dan Givens
M. Daniel Givens, DVM, PhD
Professor and Acting Department Head
Department of Pathobiology
College of Veterinary Medicine
166 Greene Hall
Auburn University, AL 36849-5519
Phone: 334-844-2650
Fax: 334-844-2652

>>> David Weaver 07-Dec-11 9:06 AM >>>

Dan,

Your name was given to me by Dale Coleman as someone who could provide support for a new course in Agronomy & Soils to be taught by Edzard van Santen. The course is AGRN 5010/6010, Analysis of Plant, Soil, and Animal Data. Basically this is an introductory data analysis course that would better prepare students for STAT 7000. I have attached a copy of the syllabus.

If you are willing to support this course as it goes before the University Curriculum Committee, a reply to this email would be sufficient. If you have questions, please let me know.

David B. Weaver
Professor
Department of Agronomy & Soils
Auburn University, AL 36849-5412
334.844.3982 (office)
334.740.4789 (mobile)