Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

1. This request is submitted by the Department of Soil and Crop Sciences

2. Course prefix, number and complete title of course: AGRO 660 Experimental Designs in Agriculture

3. Course description (not more than 50 words): Teaches fundamental principles and procedures of experimental designs in agricultural sciences. Emphasis includes factorial designs, predicting outputs, use of covariance, balanced and unbalanced experimental designs as related to common agricultural research projects under field, greenhouse or growth chamber culture. Students will become familiarized with computer programming of common statistical software.

4. Prerequisite(s) STAT 651 Cross-listed with None

5. Is this a variable credit course? ☐ Yes ☑ No If yes, from ______ to ______.

6. Is this a repeatable course? ☐ Yes ☑ No If yes, this course may be taken ______ times. Will the course be repeated within the same semester/term? ☐ Yes ☑ No

7. Has this course been taught as a 289/489/689? ☑ Yes ☐ No If yes, how many times? ______ Indicate the number of students enrolled for each academic period it was taught. ______

8. This course will be:
   a. required for students enrolled in the following degree program(s) (e.g., B.A. in history)

   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography) MS & PhD - SCSC, PLPA, ENTO, and HORT

9. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

10. Prefix | Course # | Title (excluding punctuation)
      --- | --- | ---
      AGRO | 660 | EXPT DESIGNS IN AGRIC

<table>
<thead>
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<th>Lect</th>
<th>Lab</th>
<th>SCH</th>
<th>Subject Matter Content Code</th>
<th>Admin. Unit</th>
<th>Acad. Year</th>
<th>FICE Code</th>
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Approval recommended by: [Signature] 2-29-08

Head of Department Date

Chair, College Review Committee Date

Dean of College Date

Dean of College Date

Submitted to Coordinating Board by:

Director of Academic Support Services Date

Effective Date

Questions regarding this form should be directed to Sandra Williams at 845-8836.
OAR/AS – 04/07
February 27, 2008

MEMORANDUM

TO: Amir Ibrahim
   Associate Professor, Soil & Crop Sciences

FROM: Simon J. Sheather,
      Professor & Head, Department of Statistics

SUBJECT: Approval to teach AGRO 660

Based on the conditions in the attached letter, I am writing to support your request to teach AGRO 660, Experimental Designs in Agriculture. We are pleased that you will require STAT 651 as a prerequisite and will not allow this new course to substitute for 651, or any other Statistics courses.

CC: Dr. C. Wayne Smith
25 February 2008

Dr. Simon J. Sheather  
Professor and Head  
Department of Statistics  
3143 TAMU  

Dear Dr. Sheather,

I taught a Special Topics course in “Experimental Designs in Agriculture” (AGRO 689) this past fall. AGRO 689 was not designed as a statistics course but was intended as an elective course in experimental designs for MS and PhD students in Soil and Crop Sciences and may be applicable to graduate students in the Departments of Plant Pathology, Entomology, and Horticulture.

The objective of this course is to teach students the principles and procedures of designing, implementing, and interpreting agricultural experiments. The majority of the course will focus on the designs and agronomic aspects of field, greenhouse, and growth chamber experiments. Emphasis will be on proper experimental designs when the researcher is using single or multiple factors, appropriate use of balanced and unbalanced designs, proper consideration of years and locations, the proper use of research data to determine association among variables versus the predictive value of variables, and problems associated with field experiments versus those associated with controlled environments such as greenhouses, growth chambers, and molecular genetics labs. Students will utilize computer programming of common statistical software. The Associate Department Head has indicated that we will require STAT 651 as a prerequisite and will not allow this course to be substituted for STAT 651 on our MS degree plans or other STAT courses such as 652 and 653 on any degree plans. I have enclosed the course syllabus for your review.

I intend to continue teaching this as a new numbered course (AGRO 660) pending your approval. I look forward to hearing from you. Thank you.

Sincerely,

[Signature]

Amir Ibrahim

Encl.

CC: Dr. C. Wayne Smith

Heep Center, 370 Olsen Boulevard  
2474 TAMU  
College Station, Texas 77843-2474  

Tel. 979.845.3041  
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http://soilcrop.tamu.edu
AGRO 660
Experimental Designs in Agriculture

Course Objectives: to teach students fundamental principles and procedures of experimental designs in agricultural sciences. Emphasis will be on proper experimental designs when the researcher is using single or multiple factors, appropriate use of balanced and unbalanced designs, proper consideration of years and locations, the proper use of research data to determine association among variables versus the predictive value of variables, and problems associated with field experiments versus those associated with controlled environments such as greenhouses, growth chambers, and molecular genetics labs. Students will utilize computer programming of common statistical software.

Instructor:
Dr. Amir Ibrahim
Small Grains Breeder
Office (979) 845-8274
Mobile (979) 450-3270
E-mail: aibrahim@ag.tamu.edu

Room: Heep 224

Time: Tues & Thurs; 8:00-9:15 AM

Prerequisites: STAT 651. This course is not a substitute for STAT 651, STAT 652, or STAT 653


Course Topics:

1) Basic Concepts
   a) fundamentals of agricultural research, methodology, and experimentation
   b) simple computer software programs and applications will be introduced

2) Factorial Experimental Design
   a) complete randomized design
   b) randomized complete block design
   c) Latin square design
   d) split-plot and split-split plot designs
   e) nested designs
   f) variance analyses
   g) interactions with years and locations
   i) comparisons of paired and grouped mean

3) Unbalanced Designs
   a) estimation of missing values
   b) the general linear model
   c) planned incomplete block design

4) Applications of correlation and regression analysis
   a) correlation
b) regression

5) Applications of covariance analysis
   a) completely randomized design
   b) randomized complete block design

Grading:

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<th>Activity</th>
<th>% of Final Grade</th>
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<tr>
<td>Homework</td>
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<td>Exam I</td>
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<td>Exam II</td>
<td>15</td>
</tr>
<tr>
<td>Final Exam</td>
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Grading Scale:

Final grade will be assigned on a sliding scale according to the percentage of the total possible points received:

90 – 100% = A
80 – 89% = B
70 – 79% = C
60 – 69% = D
< 60% = F

Assignments:

*Homework*
Weekly homework problems will be assigned related to that week’s lecture.

*Exam I and II*
Exams will be comprehensive in that understanding of earlier material is assumed on exams over later material.

*Final Exam*
The final exam will be comprehensive including all material presented during the course.

**Americans with Disabilities Act (ADA) Policy:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life, Services for Students with Disabilities in Room B118 of Cain Hall or call 845-1637.

**Aggie Honor Code:**
"An Aggie does not lie, cheat, or steal or tolerate those who do."

For additional information concerning the Aggie Honor Code, please visit: www.tamu.edu/aggiehonor/