ST 435: Statistical Methods for Quality and Productivity Improvement

In Workflow

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10. COS CC Chair GR ()
11. COS Final Review GR (clbowma2@ncsu.edu; alun_lloyd@ncsu.edu)
12. COS Dean GR (david_bristol@ncsu.edu; wditto@ncsu.edu; clbowma2@ncsu.edu)
13. OUCC Review (courses-curricula@ncsu.edu, aeherget@ncsu.edu, lamarcus@ncsu.edu)
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24. PeopleSoft (none)

Approval Path

1. Fri, 09 Sep 2016 17:53:18 GMT
   Spencer Muse (muse): Approved for 17ST UG Director of Curriculum
2. Sun, 11 Sep 2016 22:02:44 GMT
   Donald Martin (demart4): Approved for 17ST GR Director of Curriculum
3. Thu, 15 Sep 2016 14:07:56 GMT
   Leonard Stefanski (stefansk): Approved for 17ST UnderGrad Head
4. Thu, 15 Sep 2016 14:23:36 GMT
   Leonard Stefanski (stefansk): Approved for 17ST Grad Head
5. Thu, 15 Sep 2016 14:27:52 GMT
   Cheryll Bowman-Medhin (clbowma2): Approved for COS CC Meeting UG
6. Sun, 18 Sep 2016 22:56:54 GMT
   Gregory Neyhart (Greg_Neyhart): Approved for COS CC Chair UG
7. Sun, 18 Sep 2016 23:06:35 GMT
   Jo-Ann Cohen (cohen): Approved for COS Dean UG
8. Sun, 18 Sep 2016 23:11:17 GMT
   Alun Lloyd (alun_lloyd): Approved for COS CC Coordinator GR
9. Sun, 18 Sep 2016 23:34:50 GMT
   Alun Lloyd (alun_lloyd): Approved for COS CC Meeting GR
10. Mon, 19 Sep 2016 01:40:19 GMT
    Alun Lloyd (alun_lloyd): Approved for COS CC Chair GR
11. Mon, 19 Sep 2016 01:41:13 GMT
Alun Lloyd (alun_lloyd): Approved for COS Final Review GR
12. Mon, 19 Sep 2016 02:02:53 GMT
   Jo-Ann Cohen (cohen): Approved for COS Dean GR
13. Mon, 26 Sep 2016 17:08:56 GMT
   Alexandra Hergeth Huggins (aehlerget): Approved for OUCC Review
   Alexandra Hergeth Huggins (aehlerget): Approved for UCCC Coordinator
15. Tue, 18 Oct 2016 22:52:35 GMT
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   Li Marcus (lamarcus): Approved for UCCC Meeting
   Andrew Nowel (andy_nowel): Approved for UCCC Chair
   Barbara Kirby (barbara_kirby): Approved for OUCC Final Signature
   Li Marcus (lamarcus): Approved for OUCC Final Review
   George Hodge (george_hodge): Approved for ABGS Coordinator
   Melissa Nosbisch (mlnosbis): Approved for ABGS Meeting

Date Submitted: Fri, 09 Sep 2016 15:41:45 GMT

Viewing: ST 435/ST 535 : Statistical Methods for Quality and Productivity Improvement
Changes proposed by: allloyd

Change Type
Major

Course Prefix
ST (Statistics)

Course Number
435

Course ID
020228

Dual-Level Course
Yes

Dual-Level Course Number:
535

Cross-listed Course
No

Title
Statistical Methods for Quality and Productivity Improvement

Abbreviated Title
Stat Quality/Prod

College
College of Sciences

Academic Org Code
Statistics (17ST)

CIP Discipline Specialty Number
27.0501

CIP Discipline Specialty Title
Statistics, General.

Term Offering
Fall Only

Year Offering
Offered Every Year

Effective Date
Spring 2017

Previously taught as Special Topics?
No

Course Delivery
Face-to-Face (On Campus)

Grading Method
Graded with S/U option

Credit Hours
3

Course Length
16
weeks

Contact Hours
(Per Week)

Component Type | Contact Hours
--- | ---
Lecture | 3.0

Course Attribute(s)

Course Is Repeatable for Credit
No

Instructor Name
Herle McGowan

Instructor Title
Teaching Associate Professor

Grad Faculty Status
Anticipated On-Campus Enrollment

Open when course_delivery = campus OR course_delivery = blended OR course_delivery = flip

<table>
<thead>
<tr>
<th>Enrollment Component</th>
<th>Per Semester</th>
<th>Per Section</th>
<th>Multiple Sections?</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>50</td>
<td>50</td>
<td>No</td>
<td>None.</td>
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Course Prerequisites, Corequisites, and Restrictive Statement

Prerequisite: (ST 305 or 312 or 372) and ST 307

Is the course required or an elective for a Curriculum?

Yes

Which Curricula are Affected?

<table>
<thead>
<tr>
<th>SIS Program Code</th>
<th>Program Title</th>
<th>Required or Elective?</th>
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<tbody>
<tr>
<td>17STBS</td>
<td>Statistics</td>
<td>Elective</td>
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Catalog Description

Use of statistics for quality control and productivity improvement. Control chart calculations and graphing, process control and specification; sampling plans; and reliability. Computer use will be stressed for performing calculations and graphing.

Justification for each revision:

Pre-requisites have been updated to reflect changes in the Statistics curriculum.

Does this course have a fee?

No

Is this a GEP Course?

No

Consultation

Instructional Resources Statement

No new resources are required for this course. Course will be taught as part of faculty's regular teaching load, with the help of a 20 hour/week Teaching Assistant.

Course Objectives/Goals

Student Learning Outcomes

Students will be able to:

• Apply the techniques of Statistical Process Control to evaluate, optimize, and monitor a process
• Identify the appropriate type of control chart to use to a variety of data
• Use statistical software to create a variety of control charts
• Determine when a control chart shows that a process is (or is not) in control
• [Additional learning outcome for ST 535 students]: Demonstrate the ability to work with more theoretical aspects of selected topics via derivations, proofs, or other more advanced statistical techniques.
Evaluation Method | Weighting/Points for Each | Details
--- | --- | ---
Homework | 100 | Weekly homework assignments will be assigned via the course website.
Midterm | 100 | There will be one midterm exam.
Final Exam | 200 | The final exam will be cumulative.

Topical Outline/Course Schedule

Syllabus

ST 435 Syllabus.pdf

Additional Documentation

Additional Comments

Distinction between ST 535 and ST 435:
• Students in ST 535 will complete all work required for ST 435.
• In addition to the four learning outcomes for ST 435, by the end of the semester, ST 535 students will also: Demonstrate the ability to work with more theoretical aspects of selected topics via derivations, proofs, or other more advanced statistical techniques.
• To assess this learning objective, ST 535 students will be asked to complete additional problems on some of the written assignments.
• ST 535 students will also be asked to write a paper (5-10 pages) based on relevant quality control journal articles (worth 75 points). Students in ST 535 will be required to present their paper to the class during the last week of class (25 points). Preliminary parts of the paper will be due throughout the semester; these dates will be announced in class and/or via the course website.
• ST 535 students will be graded out of a total of 500 points.

minosbis 10/20/2016: No overlapping courses.

ghodge 10/20/2016 Ready for ABGS reviewers

ABGS Reviewer Comments:
-Student evaluation. Homework 100 Midterm 100 final exam 200. Would it be better to use % i.e.. 25% 25% 50%?
-No concern or issues as the ST535 students will be given additional assignments/work to obtain additional learning outcomes.

Course Reviewer Comments

allloyd (Thu, 04 Aug 2016 13:57:34 GMT): Passed college grad committee
allloyd (Thu, 25 Aug 2016 19:36:52 GMT): Differences between 400 and 500 level offerings of the course: 535 will have an additional learning outcome: “Demonstrate the ability to work with more theoretical aspects of selected topics via derivations, proofs, or other more advanced statistical techniques”. 535 students will have additional HW and Exam questions to evaluate this learning outcome.
aeherget (Mon, 26 Sep 2016 17:28:15 GMT): AECHH: Uploading updated syllabus per email request. 9/26/2016
aeherget (Thu, 29 Sep 2016 19:03:23 GMT): AECHH: Uploading updated syllabus per email request and updating effective date. 9/29/2016

Key: 5090