

Statistical Methods Minor

To Prepare Future Statisticians for the Industry

Goal Description:

To help students learn how to collect, organize, and analyze real world data using statistical methods and computational tools to help them to make an optimal decision.

Providing Department: Statistical Methods Minor

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Students Will Be able to Use SPSS to Study Introductory Statistical Computing

Learning Objective Description:

Students will learn how to use SPSS in order to perform Introductory statistical computing such as Linear Regression, Analysis of Variance, etc.

RELATED ITEM LEVEL 2

Introduction to Statistical Computing - STAT 3382

Indicator Description:

Students will learn Mathematical and Statistical background of topics in Computational Statistics. Also, students will acquire communication skills which enable them to solve real world problems properly using statistical learning algorithms. Term project will be given using a statistical computing language, SAS and/or R.

Criterion Description:

Through the semester, students will choose a topic from Statistical Computing and work on their data analysis project with a faculty member. The proficiency of the usage of the statistical language will be also measured by the data analysis project.

Findings Description:

This course was not offered this academic year, and so this is not being assessed.

RELATED ITEM LEVEL 3

Annual Meeting with Statistical Methods Minors

Action Description:

The goal of stat faculty advisors meeting with stats minors will be reviewed by the Stat program area. The goal or target needs to be revised or new strategies need to be developed for meeting the target.

RELATED ITEM LEVEL 3

Assessment in STAT 4390 and STAT 3382

Action Description:

The STAT 4390 and its place in the curriculum will be reviewed by the Statistics program area. Goals related to this course will also be reviewed for appropriateness.

RELATED ITEM LEVEL 1

Improve Communication Between Statistics Faculty Members and Statistics Minors

Performance Objective Description:

Throughout more active and approachable interaction with Statistics faculty members, faculty members can provide students with several kind of opportunities such as internship, scholarship, research, etc.

RELATED ITEM LEVEL 2

Annual Meeting with Statistics Faculty Members

KPI Description:

At the first semester of each academic year, an individual meeting with statistics minors will be scheduled by the advisor of the statistics minor program. Through this meeting, statistics minors will have opportunities to check their progress and to obtain information such as possible internship opportunities, statistics and data science conference information, etc.

Target Description:

80% of statistics minors will meet with their advisor.

Results Description:

Not many of the stats minors met with an advisor. Typically the only time a student met with the advisor was if s/he needed something that required approvals.

Statistics minor advisors are as follows:

- 1. Stat theory: Dr. Scariano
- 2. Methods: Dr. Gao
- 3. Data science minor: Dr. Kim

RELATED ITEM LEVEL 3

Action - Annual Meeting with Statistics Faculty Members

Action Description:

The goal of stat faculty advisors meeting with stats minors will be reviewed by the Stat program area. The goal or target needs to be revised or new strategies need to be developed for meeting the target.

To Prepare Students for Their Graduate Study

Goal Description:

Students will be prepared for their graduate study by learning the discipline specific statistical knowledge and methods for solving real world problems from their own field of study.

Providing Department: Statistical Methods Minor

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Students Will Be able to Use R for Statistical Programming

Learning Objective Description:

Students will learn how to use R statistical software package to study statistical programming in basic machine learning topics such as clustering, classification etc.

RELATED ITEM LEVEL 2

Independent Study - STAT 4090

Indicator Description:

Undergraduate Statistics minors will enroll in STAT 4090 in which students can study several special topics in Statistics such as Categorical Data Analysis, Survival Data Analysis, Biostatistics, etc. Students may take this course more than once and semester research project will be provided by a faculty member.

Criterion Description:

Most undergraduate Statistics minors will enroll in STAT 4090 and complete semester long research project with a faculty member.

Findings Description:

This Indicator is not being assessed and needs to be reviewed for its appropriateness.

RELATED ITEM LEVEL 3**Annual Meeting with Statistical Methods Minors****Action Description:**

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RELATED ITEM LEVEL 3**Undergraduate Research Experience through STAT 4090****Action Description:**

The role of 4390 and the number of students expected to complete a research experience will be reviewed by the Stats program area.

RELATED ITEM LEVEL 2**Introduction to Statistical Learning - STAT 4390****Indicator Description:**

Students will learn several topics from the supervised and unsupervised statistical learning in which they can obtain skills of statistical programming in R. Topics include Neural Network, Classification, Clustering, etc., and students will be evaluated by their term project.

Criterion Description:

The term project will be completed based on a real world dataset of their choice. This class will be essential especially for students who will be looking for a data analysis position after graduation.

Findings Description:

In STAT 4390, there were 10 students, two of whom failed to meet our 80% evaluation threshold, for the project, while eight students either met or exceeded expectations.

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RELATED ITEM LEVEL 1**Students Will Be able to Use SAS to Study Intermediate Statistical Computing****Learning Objective Description:**

Students will learn how to use SAS in order to perform intermediate statistical computing such as Design of Experiments, Generalized Linear Modeling, etc.

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To Provide Students with Adequate Quantitative Skills and Interpretations

Goal Description:

Students will acquire proper communication skills with numerical data through learning statistical tools which describe and interpret given data numerically and visually.

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Update to Previous Cycle's Plan for Continuous Improvement

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary

We will have a new BSDS program and a new Data Science minor in our department starting the next semester. Statistics faculty members will be actively working with students in these programs together.

Update of Progress to the Previous Cycle's PCI:

The BSDS and DS minor are up and running.

New Plan for Continuous Improvement

Closing Summary:

- The goal of stat faculty advisors meeting with stats minors will be reviewed by the Stat program area. The goal or target needs to be revised or new strategies need to be developed for meeting the target.
- STAT 4390 and its place in the curriculum will be reviewed by the Statistics program area. Goals related to this course will also be reviewed for appropriateness.
- The role of 4390 and the number of students expected to complete a research experience will be reviewed by the Stats program area.