Assessment Plan

Western Michigan University

Statistics

Mission Statement: The mission of the Department of Statistics is to provide quality education, conduct research and offer statistical support for experimental research.

Vision Statement: Our undergraduate major program is designed to teach students the basics of statistical theory and application. As a result graduates of these programs should be able to do routine statistical thinking in recognizing what statistical methods are appropriate as well as perform standard data analysis methods for design and analysis of experiments and regression.

Our undergraduate minor programs are designed to provide students enough statistical knowledge to be able to apply standard statistical procedures to data generated by their major field of endeavor and to understand statistical arguments appearing in the practice of their chosen field.

Our Masters program in Statistics is designed to give students the knowledge and ability to do advanced statistical analysis. It also gives students enough theoretical background to enable them to distinguish between standard and nonstandard situations and to thus choose and apply the appropriate methodology. It is expected that in looking for the appropriate statistical techniques a graduate of our program will be able to successfully search the statistical literature. Graduates of this program could also be prepared to enter a Doctoral Program in Statistics.

Our Doctoral program in Statistics is designed to prepare students for theoretical as well as applied work in Statistics. Students graduating from this program should be prepared to distinguish standard from nonstandard statistical situations and either apply or develop the appropriate methodology.

Outcome: Capable of doing PhD program

Students successfully handle commonly used statistical methods and know the theory behind these methods.

Track: Statistics-PhD

Outcome Status: Active

Assessment Evaluation: Pass DGE at the high (PhD) level. The exam has two written parts: statistical methods and statistical theory.

Means of Assessment

Assessment Method	Criterion	Schedule	Active
Written exam in two parts, theory and methods. **Assessment Method Category:** Departmental Committee Review	PhD level	Annually during month of May	Yes

Outcome: Capable of doing research in statistics

Student has sufficient theorical knowledge to understand current research in statistics and has a good grasp of statistical methodology.

Track: Statistics-PhD

Outcome Status: Active

Assessment Evaluation: Successfully completing three preliminary exams.
1) Prelim in Statistical Inference
2) Prelim in Linear Models and Multivariate analysis.
3) Prelim in Statistical methods.

Means of Assessment

Assessment Method	Criterion	Schedule	Active
1. Prelim in Statistical Inference 2. Prelim in Linear Models and Multivariate analysis 3. Prelim in Statistical Methods **Assessment Method Category:** Departmental Committee Review	pass	June alternate years for the first two. Third Preliminary exam is offered in September and January.	Yes

Outcome: Dissertation Topic

The student in conjunction with a faculty member develops a dissertation topic. This involves creative research. The initial development should be sufficiently complete to predict a reasonable chance of success.

Track: Statistics-PhD
Outcome Status: Active
Assessment Evaluation: PhD disseration proposal defense.

Means of Assessment

Assessment Method	Criterion	Schedule	Active
PhD dissertation proposal defense.	pass	Student directed.	Yes

Assessment Method Category:
Departmental Committee Review

Outcome: Successful PhD Dissertation

A creative work of applied and/or theoretical statistics.

Track: Statistics-PhD
Outcome Status: Active
Assessment Evaluation: Oral Defense and a written dissertation

Means of Assessment

Assessment Method	Criterion	Schedule	Active
Oral Defense and well written dissertation	pass	Student directed	Yes

Assessment Method Category:
Departmental Committee Review

Outcome: Successful in Profession

The graduates of our Statistics Department are successfully employed in academia, industry, or government.

Track: Statistics-PhD
Outcome Status: Active
Assessment Evaluation: A periodic (bi-annual) random sample of our alumni.

Means of Assessment

Assessment Method	Criterion	Schedule	Active
All our alumni have professional jobs.		Annual	Yes

Assessment Method Category:
Departmental Committee Review

Outcome: Capable of doing Masters Program

Student needs three semesters of calculus, 1 course in linear algebra, 1 methods course in statistics, and 1 post calculus course in probability.

Track: Statistics-Masters
Outcome Status: Active
Assessment Evaluation: Pass methods part of the DGE at the high Masters level.

Means of Assessment

Assessment Method	Criterion	Schedule	Active
Written exam in methods.	passes exam at Masters level	Annually in May	Yes

Assessment Method Category:
Departmental Committee Review

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Student are in good academic standing **Assessment Method Category:** Course Grade	GPA 3.2		Yes

Outcome: Capable of doing Statistics at Masters Level

Capable of doing statistical work at the Masters Level.

Track: Statistics-Masters
Outcome Status: Active

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Student is in good standing. **Assessment Method Category:** Course Grade	GPA 3.2		Yes
Written exam in two parts, theory and methods. **Assessment Method Category:** Departmental Committee Review	passes at masters or PhD level.		Yes

Outcome: Capable of working at the Masters Level

Capable of working professionally at the Masters Level

Track: Statistics-Masters
Outcome Status: Active
Assessment Evaluation: Graduating from WMU with a Masters Degree in Statistics.

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Course work and exams. **Assessment Method Category:** Departmental Committee Review	Passed required course work with at least GPA of 3.2 and DGE exams at the masters level.		Yes

Outcome: Successful in Profession 1

A graduate of our program is either successfully employed or admitted to a doctoral program in statistics.

Track: Statistics-Masters
Outcome Status: Active
Assessment Evaluation: A periodic random sample of our alumni.

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
A periodic random sample of our alumni.		Annually.	Yes

Outcome: Learning Statistical Processes

Students, who have a statistical major, have learned the basic concepts of statistical theory and computational procedures.

Track: Statistics-Undergrad Major
Outcome Status: Active
Assessment Evaluation: 6 hours of CS, 16 hours of Math, and 37 hours of Stats

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
6 hours of CS, 16 hours of Math, and 37 hours of Stats **Assessment Method Category:** Course Grade	GPA 3.0		Yes

Outcome: Applying Statistical Processes

Students, who have a statistical major, can use proper statistical reasoning, problem solving techniques and statistical analysis methods.

Track: Statistics-Undergrad Major
Outcome Status: Active
Assessment Evaluation: 6 hours of CS, 16 hours of Math, and 37 hours of Stats

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Completing Stat 4640, Introduction to Statistical Computing, and building a portfolio of reports of two standardized projects. In addition, 6 hours of CS, 16 hours of Math, and 37 hours of Stats **Assessment Method Category:** Course Grade	GPA 3.0		Yes

Outcome: Communicating Statistical Results

Students, who have a statistical major, are trained in effective oral and written communication.

Track: Statistics-Undergrad Major
Outcome Status: Active
Assessment Evaluation: Stat 4810 where the student will develop a significant portfolio of work.

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Completing Stat 4810, Communicating Statistical Results, and building a portfolio of reports. **Assessment Method Category:** Capstone	GPA 3.0		Yes

Outcome: Learning Statistical Methods

Students, who have a statistical minor, have learned the application of basic statistical methods and appropriate computational procedures.

Track: Statistics-Undergrad Minor
Outcome Status: Active
Assessment Evaluation: 17 hours of Stats

Means of Assessment			
Assessment Method	**Criterion**	**Schedule**	**Active**
Successfully completing 17 hours of Stats **Assessment Method Category:** Course Grade	GPA 3.0		Yes

Outcome: Applying Statistical Methods

Students, who have a statistics minor, can use appropriate statistical reasoning, problem solving techniques and statistical analysis methods.

Track: Statistics-Undergrad Minor
Outcome Status: Active

Assessment Evaluation: 17 hours of Stats

Means of Assessment

Assessment Method	Criterion	Schedule	Active
Successfully completing 17 hours of Stats	GPA 3.0		Yes

Assessment Method Category:
Course Grade

Outcome: Successful Completion of Stat 2160

Students successfully handle commonly used statistically procedures in the business environment.

Track: Service Courses

Outcome Status: Active

Assessment Evaluation: There are two mid-term and a final exam (70 percent). In addition, there are four projects using Excel and on-line homework which account for 30 percent.