

Department of Statistics

Graduate Student Handbook

Brigham Young University
2017 – 2018 Academic Year

Department of Statistics

Main Office

(801) 422-4505
223 TMCB
statsec@stat.byu.edu
Fax: (801) 422-0635

William F. Christensen

Department Chair
(801) 422-7057
223J TMCB
william@stat.byu.edu

Gilbert W. Fellingham (until December 31, 2017)

Graduate Coordinator
(801) 422-2806
223H TMCB
gwf@stat.byu.edu

David B. Dahl (after December 31, 2017)

Graduate Coordinator
(801) 422-9222
223H TMCB
dahl@stat.byu.edu

Amy Cetz

Department/Grad Secretary
(801) 422-4506
223 TMCB
acetz@stat.byu.edu

Ruth Dauwalder

Administrative Manager, Controller
Internships and Career Services
(801) 422-4527
223G TMCB
ruth@stat.byu.edu

Office of Graduate Studies

Front Desk

(801) 422-4091
105 FPH
gradstudies@byu.edu
Fax: (801) 422-0270

Wynn Stirling

Dean of Graduate Studies
wynn_stirling@byu.edu

Logan Gillette

Graduate Admissions
(801) 422-7308
logan_gillette@byu.edu

Claire DeWitt

Graduate Advisement
(801) 422-4541
claire_dewitt@byu.edu

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Introduction

Welcome to the Master of Statistics program at Brigham Young University. We are glad to have you as a part of our program and anticipate that your time here will be stimulating, challenging, and rewarding.

The purpose of the Graduate Handbook is to help students complete the master's degree program as smoothly as possible. We have included brief descriptions of the major stepping-stones leading to completion of the degree and a few stumbling blocks encountered by previous students. Since we intend to revise this handbook periodically, please let the Graduate Coordinator know if there are any additional topics that should be included or if any of the material is outdated.

Not all of the material in this handbook will be immediately relevant. Nevertheless, students should read the entire handbook when they begin the program and refer to it later as needed. Familiarity with the contents of the handbook will also make it easier for department personnel to help when problems arise. Additional information may be obtained from the BYU Graduate Studies Catalog, your Committee Chair, the Graduate Coordinator, or the Department Secretary.

Department Mission Statement

The mission of the Department of Statistics is to help students develop their intellect and faith, expand their understanding of the role of science in the objective systematic pursuit of truth, demonstrate how sound statistical methodology strengthens scientific conclusions, cultivate the ability to understand and communicate the results from empirical research in an ethical manner, and develop and apply methods of modern statistical science. To succeed in this mission, we will:

1. Offer the premier undergraduate educational experience to statistics and actuarial science majors that prepares them to pursue satisfying and productive careers and qualifies them to enter competitive graduate programs.
2. Offer an applied statistics graduate program that prepares outstanding students for successful and productive careers.
3. Provide superb teaching in general education and service courses to cultivate an understanding of the role of the scientific method in performing empirical research.
4. Contribute to the advancement of statistical science through peer-reviewed research, and collaborate on the pursuit of knowledge across scientific disciplines.

Expectations

What students can expect from the program

This program will prepare men and women for statistical careers or for entrance into top PhD programs in statistics or biostatistics. Graduates will understand the theoretical foundation of and be able to perform advanced statistical methods. Also, graduates will be able to identify applicable statistical methods to collaborate in research and in consulting problems.

The first year of the graduate program consists of a core curriculum that will prepare graduate students for the comprehensive exam. During the second year, classes in advanced statistical methods reflecting faculty expertise will be taken.

Students who complete the Statistics MS program will:

1. Be employable in jobs with MS Statistics requirements or prepared for top PhD statistics or biostatistics programs.
2. Demonstrate a mastery of the theoretical foundations of statistics at the first-year level of top PhD statistics or biostatistics programs.
3. Demonstrate the ability to apply sound scientific and advanced statistical methodology to research situations.
4. Demonstrate competence in relevant statistical software.
5. Demonstrate good statistical consulting skills (teaching, problem solving, and oral and written presentations).

What students can expect from the faculty

Faculty members are experts in the department's traditionally strong areas of applied linear models and designed experiments, as well as recent developments in Bayesian methods, spatial and environmental statistics, reliability of industrial and computing processes, statistical genetics and bioinformatics, mixed models and longitudinal data, data mining, chemometrics, and issues in statistical computation.

What is expected of graduate students?

We expect students to be committed to complete their degree and graduate in two years or less. A timeline, on page 6, details the tasks and deadlines that students need to follow. While it is tempting to create a schedule that meets the minimum degree requirements, we encourage students to take at least 10 credit hours each semester. Those who take advantage of as many of the 400- and 500-level courses, as possible, will be more prepared and more competitive when entering into the job market.

Timeline to Graduation

1st Semester – Fall 2017

- Stat 535, 624, 641, 591R
- 1 credit hour of Stat 698R
- Complete admission provisions, if any
- Enroll on statmoodleg.byu.edu
- Complete a Program of Study form and return to the department secretary with first year advisor signature and graduate coordinator

2nd Semester – Winter 2018

- Stat 536, 537, 642, 591R
- Pick one from Stat 531, 538, 590R, or 595R
- 1 credit hour of Stat 698R
- Prepare and give a presentation on a class project, consulting experience, or a research project at the Student Research Conference
- Comprehensive Exam
- Summer Internship

3rd Semester – Fall 2018

- Stat 651 and 666, plus 591R
- Pick one from Stat 531, 538, 590R, 595R, or an approved elective
- 1 credit hours of 698R
- Complete coursework listed on Program of Study list
- Submit class projects to statmoodleg.byu.edu
- Receive clearance from Committee Chair to move forward on portfolio or selected project
- Prospectus defense on portfolio or selected project – No later than December 7, 2018

4th Semester – Winter 2019

- Stat 637 and 591R
- Pick one from Stat 531, 538, 590R, 595R, or an approved elective
- 2+ credit hour enrollment in 698R
- Prepare and give a presentation on a class project, consulting experience, or a research project at the Student Research Conference
- Apply for graduation online
- Portfolio or Selected Project
 - Schedule Final Defense - students will give their committee a copy of their project or submit a copy of their revised portfolio, via statmoodleg, no later than March 22, 2019 with the graduate committee and fill out the scheduling form (see the department secretary). After the committee signs the form, please bring the form to the department secretary.
- Defend the project or portfolio - must be completed by April 5, 2019

- Go to printandmail.byu.edu and submit the PDF file of the project or portfolio for printing (students are required to provide the department with one copy)

Curriculum

Prerequisites

Admission to the graduate program in the Department of Statistics presupposes that students will have completed all of the prerequisites or suitable equivalents stated below:

- A bachelor's degree from an accredited U.S. university or equivalent, with a minimum 3.3 overall undergraduate GPA.
- A B- or better in a methods course beyond introductory statistics, a calculus-based statistical theory course, multivariate calculus, and linear algebra. A math minor is recommended.
- Students must also have taken the general GRE (Graduate Record Exam) and be proficient in written and spoken English (IELTS Score: Overall band score of 7.0, minimum band score of 6.0 in each module; TOEFL Paper-based Score: 580, CAE minimum score of 75 or grade of B, or TOEFL iBT Score: Total score of 85, with a minimum score of 22 in Speaking and 21 in Listening, Reading, and Writing).

If the applicant has not clearly satisfied these prerequisites, they may be admitted to the graduate program on a provisional basis. In such cases, the admitted student should discuss their situation with the Graduate Coordinator immediately. If necessary, appropriate remedial coursework will be added to the graduate's study list and should be completed as soon as possible. The department will generally not provide tuition assistance for coursework intended to remedy deficiencies in satisfying these prerequisites.

Prior to admission, and while enrolled in the program, a student must have a current ecclesiastical endorsement. Direct any questions about this requirement to the Department Secretary.

Graduate Courses

The Department of Statistics offers a number of courses on various statistical concepts and specializations. Once a student has been admitted into the master's program, there will be opportunities to enroll in graduate-level courses. Stat 535, 536, 537, 624, 637, 641, 642, 651, and 666 are our **required** core classes. Please see the **Timeline to Graduation** on page 6 for an ideal schedule. Direct any questions about coursework to the Graduate Coordinator.

Graduate Required Courses

- Stat 535 Linear Models
Prerequisites: departmental consent
Offered Fall Semester
Analysis of full-rank model, over-parameterized model, cell means model, unequal subclass frequencies, missing and fused cells, estimability issues, diagnostics
- Stat 536 Statistical Learning & Data Mining
Prerequisite: Stat 535, 624
Offered Winter Semester
Weighted least squares, Bayesian linear models, robust regression, nonlinear regression, local regression, generalized additive models, tree-structured regression
- Stat 537 Mixed Model Methods
Prerequisites: Stat 535
Offered Winter Semester
Fixed effects, random effects, repeated measures, non-independent data, general covariance structures, estimation methods
- Stat 624 Statistical Computation
Prerequisite: departmental consent
Offered Fall Semester
Fundamental numerical methods used by statisticians, programming concepts; efficient use of software for statisticians; simulation studies
- Stat 637 Generalized Linear Models
Prerequisites: Stat 535, 642 or equivalents
Offered Winter Semester
Generalized linear models framework, binary data, polytomous data, log-linear models
- Stat 641 Probability Theory & Mathematical Statistics 1
Prerequisite: departmental consent
Offered Fall Semester
Axioms of probability; combinatorics; random variables, densities, and distributions; expectation; independence; joint distributions; conditional probability; inequalities; derived random variables; generating functions; limit theorems; convergence results
- Stat 642 Probability Theory & Mathematical Statistics 2
Prerequisite: Stat 641
Offered Winter Semester
Introduction to statistical theory; principles of sufficiency and likelihood; point and interval estimation; maximum likelihood; Bayesian inference; hypothesis testing; Neyman-Pearson lemma; likelihood ratio tests; asymptotic results including delta method; exponential family

- Stat 651 Bayesian Methods
Prerequisites: Stat 536, 642
Offered Fall Semester
Basic Bayesian inference, conjugate and non-conjugate analyses, Markov chain Monte Carlo methods, hierarchical modeling, convergence diagnostics
- Stat 666 Multivariate Statistical Methods
Prerequisites: Stat 535, 624, 642
Offered Fall Semester
Inference about mean vectors and covariance matrices, multivariate analysis of variance and regression, canonical correlation, discriminant analysis, cluster analysis, principal component analysis, factor analysis

Graduate Electives

- Stat 531 Experimental Design
Prerequisite: Stat 330, Math 313
Offered Fall Semester
Basic designs, power and sample size, Latin squares, incomplete blocks, change-over designs, factorials, fractional factorials, confounding, split-plots, response surface designs
- Stat 538 Survival Analysis
Prerequisite: Stat 341 or equivalent
Offered Winter Semester
Basic concepts of survival analysis, hazard functions, types of censoring, Kaplan-Meier estimates, Logrank tests, proportional hazard models, examples drawn from clinical and epidemiological literature
- Stat 590R Statistical Consulting
This course is for students working in the Consulting Center for credit.
- Stat 595R (Research) Special Topics in Statistics (1.0–3.0)
Offered anytime with prior arrangement
- Stat 631 Advanced Experimental Design
Prerequisites: Stat 431 or equivalent; 535, 642
Currently not offered
Response surface methods, mixture designs, optimal designs, fractions of two-level, three-level, and mixed-level factorials, analysis of experiments with complex aliasing, robust parameter designs

Special Courses

- Stat 591R Graduate Seminar in Statistics (0.0)
Students must sign up for 0.0 credits of Stat 591R each semester they are enrolled as a full-time student (9.0 credit hours). If the student is enrolled in less than 9.0 credits, they will not register for Stat 591R. Whether registered for the class or not, all graduate students are expected to attend department seminars, which are viewed as an integral part of each student's education. Seminars provide students with an opportunity to see current scholarly research presented by leaders in academics, industry, and government. Furthermore, they provide students with an opportunity to engage their minds in the challenging process of learning to glean and assimilate information presented at a high level. Please avoid any scheduling conflicts that would prevent attendance during the reception and the seminar.
- Stat 595R Special Topics in Statistics (1.0–3.0)
Offered anytime with prior arrangement
- Stat 599R Academic Internship: Statistics (1.0–9.0)
Offered anytime with prior arrangement
For 3.0 credit hours, students should be working 20 supervised hours-per-week and must write a 10–15 page internship report describing the significant statistical work of the internship.
- Stat 690R Advanced Special Topics (3.0)
Offered anytime with prior arrangement
- Stat 695R Readings in Statistics (1.0–3.0)
Prerequisite: departmental consent
Offered anytime with prior arrangement

Project & Thesis Credit

- Stat 698R Master's Project (3.0)
Enroll in the section associated with the assigned Committee Chair
- Stat 699R Master's Thesis (6.0) if the student is interested in a Thesis, please see the Graduate Coordinator.
Enroll in the section associated with the assigned Committee Chair

When enrolled in this course, each student should meet with their Committee Chair one hour each week and work three hours each week on their Project or Thesis for each registered credit hour. Registering for 698R and 699R cannot be done online. In order to register, students must receive an add code from their Committee Chair or the Department Secretary. Please make sure to register well before the add/drop deadline, which is usually two weeks after the beginning of the semester. The instructor for each section of 698R and 699R is different—please register for the section taught by the designated Committee Chair.

Undergraduate Electives

Although they are not required, we recommend students think about taking some undergraduate courses to expand career opportunities. Please keep in mind that the maximum number of 300- and 400-level credits that can count towards a graduate degree is 9 hours. 100- or 200-level credits **cannot** count towards a graduate degree. The final course list must be approved by the student's Graduate Committee and the Graduate Coordinator

- Stat 123 Introduction to R Programming
Prerequisite: Stat 121; or Stat 201
Offered Fall and Winter Semester
Base R programming skills, introductory statistical analysis and graphics, simulation of introductory statistical concepts
- Stat 124 SAS Base Programming Skills
Prerequisite: Stat 121; or Stat 201
Offered Fall Blk 1; Winter Blk 1; Spring Semester
SAS basic programming certification
- Stat 223 Applied R Programming
Prerequisite: Stat 123
Offered Fall and Winter Semester
Base R programming skills, introductory statistical analysis and graphics, simulation of introductory statistical concepts
- Stat 224 Applied SAS Programming
Prerequisite: Stat 124
Offered Fall; Winter; Summer Semester
Statistical programming using the data step in SAS; basic Procs; Proc MEAN, SORT, TABULATE, SQL, and REPORT; ODS; simple MACROS

- Stat 381 Statistical Computing 2
Prerequisite: Stat 224 and Stat 330
Offered Winter Semester
 S Plus, statistical graphics, simulation, advanced SAS (macros, Proc IML, and Proc SQL), and database programming
- Stat 435 Nonparametric Statistical Methods
Prerequisite: Stat 330; or Stat 511
Offered Fall
 Permutation tests, rank-based methods, analysis of contingency tables, bootstrap methods, curve fitting
- Stat 451 Applied Bayesian Statistics
Prerequisite: STAT 251 & STAT 330. Concurrent enrollment in STAT 340.
Offered Fall
 Bayesian analogs of t-tests, regression, ANOVA, ANCOVA, logistic regression, and Poisson regression implemented using JAGS, Nimble, Stan, and Proc MCMC
- Stat 462 Quality Control and Industrial Statistics
Prerequisite: Stat 330 and 340
Offered Fall Semester
 Six sigma tools with which to define, measure, analyze, improve, and control; Advanced concepts in control charts, applying experimental design for process and product improvement
- Stat 466 Introduction to Reliability
Prerequisite: Stat 330; or 340
Offered Winter Semester
 Mathematics, distributions, management, and maintenance of basic reliability concepts; collection and analysis of test data, fault tree analysis, applying reliability in various areas

Transfer Credit, Senior Credit, and Non-degree Credit

Transfer Credit from another university may be used toward a master's degree in statistics. However, the following restrictions apply:

- Only graduate-level credit will be considered for transfer
- Only credit from an accredited or certified (domestic or foreign) university will be considered for transfer
- The department must approve all transfer credit
- If the credits are to be earned after the student is enrolled in the master's program at BYU, the courses must be pre-approved by the department
- A special examination by the Department of Statistics may be administered before transfer credit is approved
- Transfer credit can only be used for elective requirements, not for core requirements
- A letter grade of B or better is required for all transfer classes
- The maximum number of transfer credits is 7.0

Senior Credit refers to credit taken while a senior at BYU. **Non-degree Credit** refers to credit taken after receiving a bachelor's degree but before being admitted to the master's program in statistics. Senior and non-degree credit may be applied toward a master's degree in statistics under the following restrictions:

- Only credit which has not been applied toward another degree can be considered (there can be no double application of credit)
- The department must approve all senior and post-baccalaureate credit
- The total of senior and post-baccalaureate credits cannot exceed 10.0

Course Availability

	Availability of Courses							
	2017-2018				2018-2019 (<u>tentative</u>)			
	Fall	Winter	Spring	Summer	Fall	Winter	Spring	Summer
Required Courses	535	536	698R	698R	535	536	698R	698R
	624	537	699R	699R	624	642	699R	699R
	641	642			641	537		
	591R	591R			591R	591R		
Graduate Electives	666	651	599R		651	538	599R	
		531			666	531		
		590R				590R		
						637		
Undergrad Electives	435	466			435	466		
	451				451			
	462				462			

The Integrated program handles senior credit in a different manner. If you have any questions, see the Graduate Coordinator.

Registration

Minimum Registration Requirement

U.S. graduate students are required to register for at least 2.0 credit hours during any semester or term in which they use any university facilities, consult with faculty, or take comprehensive or oral examinations. The numbers of graduate credit hours for which they register must, in the judgment of the faculty advisor, accurately reflect the student's involvement in graduate study and use of university resources such as libraries, laboratories, and computer facilities. In no case will the registration be for fewer than 2.0 credit hours per semester. Students are required to register for at least 2.0 credit hours in the semester or term of admittance. Registering for two credits of 698R or 699R during spring term also allows for study during summer term. Graduate students must be registered for at least two 2.0 hours of Stat 698R or 699R in the semester or term they defend their final project/thesis.

If the student desires to work for the department this may also influence the student's study list and graduation plans. The graduate student must be registered for at least 2.0 credits in a semester during which they receive a stipend from the department, and for at least 1.0 credit each during any spring or summer term (2.0 credits spring term will cover tuition for summer term). For graduate students who are not completing an internship, Stat 698R or 699R may be the most appropriate course for spring and summer terms.

U.S. Students, Academic Year

To retain active status and to qualify for subsequent registration, graduate students must register for at least 6.0 semester hours each school year and receive acceptable grades (no D, E, W, UW, NS, or I grades are allowed, nor are audits or correspondence courses). Students who do not fulfill this yearly requirement are dropped from their graduate programs; they lose their graduate status and must apply for readmission if they wish to continue.

International Students

9.0 credit hours constitute a full course of study at BYU. Therefore, international students must register for at least 9.0 semester hours each fall and winter semester to satisfy U.S. Immigration regulations. Questions should be directed to International Services (1351 WSC, Provo, UT 84602-7917, (801) 422-2695).

Full-Time Status

In order to maintain full-time graduate status, a minimum of 8.5 credits must be taken each semester or 4.5 credits each term. Any number of credit hours lower than this is considered part-time.

Employment & Financial Assistance

Financial Assistance

The department has limited funds to supplement students' financial resources. Admitted students receive teaching assistantships and many receive full or partial tuition awards. A limited number of research assistantships are also available.

Tuition Awards

The acceptance letter to the MS Statistics program included information regarding tuition scholarships, if available, for the first year (fall and winter semesters) in the program. Tuition scholarships for the second academic year will be awarded on a competitive basis.

Employment Opportunities

As part of the terms of the stipend that the student accepted upon admission, students are expected to work for the Department for at least 10 hours per week. Students can work up to 20 hours per week. Students can make arrangements for a reduced stipend if they would like a lighter workload. Graduate students are typically employed on contract and will not need to worry about clocking in and out of work. First year Integrated BS/MS statistics students are not on contract and must clock in through Y time. Everyone will be paid every other week. Each student's work assignments and stipend amount depend on their past performance within the department. The amount of each stipend is determined by the department chair. Employment is for fall and winter semesters, but summer support is generally available if requested.

Teaching Assistantships

Most graduate student funding supports the department teaching effort. Students may be assigned to conduct labs, grade papers, work as course assistants, or work in the Center for Statistical Consultation and Collaborative Research, among other things.

Research Assistantships

Some graduate students may also be hired to assist designated faculty members with specific research projects. If a student is interested in working with a faculty member, they should arrange to meet with that faculty member to discuss their interest. Funding for such projects is made available through grants and other funding obtained by the department faculty.

Personal Decision to Leave the Program

Students may decide that they no longer wish to continue the MS program. In order to terminate graduate student status, form ADV 7 will need to be filled out. **Please note that if the student decides to discontinue during the semester, they will be responsible for paying the tuition and any fees incurred for discontinuing. This even applies if the tuition was paid by scholarship. The scholarship money will be returned to the department and the student will be billed for the full tuition amount. The full amount applies if one terminates early in the semester, the middle, or even the last few day. In addition, employment will be terminated the day the discontinuance is filed. The students will not be allowed to work after that date.**

Health Insurance

Mandatory Health Insurance

Health insurance is mandatory for all students. Students who do not provide proof of private insurance will be automatically enrolled in the BYU Student Health Plan each semester. Verification of private insurance must be provided at the beginning of each academic year. For more information about BYU's insurance requirements, visit health.byu.edu or contact the BYU Student Health Center at (801) 422-2661.

Student Health Plan

For details about the BYU student health plan, students can access the BYU Student Health Plan Handbook at: <http://www.dmba.com/nsc/Student/Handbooks.aspx>.

Insurance Coverage After Graduation

Students who graduate and wish to continue coverage under the BYU Student Health Plan may enroll in Extended Coverage if they were enrolled in the Student Health Plan their last semester or term. To learn more about Extended Coverage, consult page 8 in the BYU Student Health Plan Handbook or contact the BYU Student Health Center at (801) 422-2661.

Also, the Alumni Association offers insurance for BYU alumni. Students can reach them at 1-800-922-1245.

Department Resources

MS Student Offices

The Department of Statistics maintains several offices for graduate students. Students can expect to share the office with other statistics graduate students, but each individual will have their own area and a reasonable amount of shelf space. If an office has not already been assigned, the student is unsure about their assignment, or would prefer a different office, feel free to contact the Graduate Coordinator.

Office assignments are generally for the academic year, although we reserve the right to change office assignments as necessary. At times, the department may need to store pieces of equipment, computer manuals, etc. in a graduate office. We will do as much as possible to minimize any inconvenience. In return, we expect students to be properly careful of any items that might be stored in their office. Once a graduate student has completed the program, we request that the student vacate his or her office one week after graduation. When a student vacates an office, please remove all personal property. Occasionally office space may be needed to complete research the summer after graduation. If that is the case, please see the Graduate Coordinator.

Please do not invite or allow unauthorized persons to take up residence in their office, even if a spare desk is available. Only stat graduate students should use the offices. Please notify the Graduate Coordinator if unauthorized persons are using the assigned office.

We request that the students keep their office space and facilities clean and intact. **No microwaves, other appliances, or large items of furniture are permitted in student offices. Special permission from Ruth Dauwalder must be received to have a mini refrigerator (20 inches) in student offices.** A microwave is available at the south end of the main floor lobby of the Talmage Building or in the break area of 223 TMCB. If students need dry erase markers, please see the secretaries at the front desk. Students should not use the department paper products at any time.

Computers

We would highly recommend that graduate students have their own wireless laptop (either a Mac or PC). Computers that are located in the SURCL (200 TMCB) are provided by the faculty and should be used for research. Personal computers and printers are allowed in student offices, but must be kept on individual desks. **Internet wiring may not be modified or augmented in any way.** When a student is finished using a department computer, please remember to log off. Students are responsible for anything done on the computer while they are logged in.

Computers are not to be used for inappropriate purposes. As one specific example, access to pornographic web sites will not be tolerated. Computer use in labs and offices will be monitored. Any use of department or university computers for inappropriate purposes will result in dismissal from the graduate program in statistics and will be reported to the Honor Code Office. Also, department equipment and software are not to be used for private income-producing projects.

Libraries

The department library is located in room 223M TMCB. One will find general statistics books, archived statistical journals, past projects and theses, current issues of statistical journals, and other materials that may be helpful. As the student prepares their selected project or thesis, it may be helpful to look over past projects/theses for formatting and writing style help. Books may not be removed from the libraries, except for quick trips to the copy machine.

Open Labs

Room 244 TMCB is a designated open lab for Stat 121, 123, 124, 223 and 224. Room 235 TMCB is also a designated open lab. Graduate TA meetings should be held in 235 rather than in individual offices. The environment is more conducive to meeting with small groups of students and respects the space of office mates.

Student Research Conference

The 31st annual Student Research Conference, sponsored by the College of Physical and Mathematical Sciences, will be held in March 3, 2018 (<http://cpms.byu.edu/spring-research-conference/>). The conference consists of two 1½-hour sessions. During each block of time there are several presentations sponsored by the departments in the college. Each session consists of six fifteen-minute presentations by students describing their research projects and results. There is also a small cash award for the best presentation in each session.

The Department of Statistics requires each graduate student to make a presentation at the Student Research Conference while in residency. Graduate students generally make a presentation on a class project, their consulting experience, or another research project. The student's Committee Chair or the Graduate Coordinator can give advice on how to prepare for and make this type of presentation. The department also schedules times for practice sessions to provide suggestions for presenters.

3MT Competition

3MT (or Three Minute Thesis) is a research presentation competition that originated at the University of Queensland in 2008. Since then, the program has spread to several universities worldwide.

Students participating in 3MT have three minutes to give a presentation based on their research. Individual departments and colleges within BYU will hold their own competitions near the beginning of winter semester to determine which two competitors (per college) will advance to the university-wide competition, which will be held in March 2017. The competitor who wins first will receive \$5,000, second place will receive \$2,500, third place will receive \$1,500, and the People's choice will win \$1,000. We encourage all graduate students to participate, starting at the department level competition.

Internships and Employment

After the first year of coursework, graduate students will be well prepared for a summer internship experience. An internship benefits both the organization offering the internship and the student. The student has the opportunity to work with practicing statisticians who are proficient in their fields and to learn what it is like to work in an industrial, laboratory, or office setting away from the academic environment. The organization obtains the benefit of the student's academic and other training, contributes to the further professional development of that student, and has a first-hand opportunity to evaluate the student's potential for future employment.

Students should investigate internships in the field in which they would like to work. We have many alumni willing to coordinate internships for highly motivated students. Each year a dozen organizations come to campus to recruit interns. The American Statistical Association publishes a list of internship opportunities in the December AmStat News. We also circulate, via email or the statistics website, all internship announcements. Be sure to have a well-prepared resume and begin looking in November for internship opportunities. Many internship plans finalize in March. For counseling and information, please contact the Graduate Coordinator or the Committee Chair.

If the student would like to receive credit for their internship, they must receive permission from the Graduate Coordinator and their Committee Chair before the internship. The student will register for 599R to receive academic credit for the internship.

We also circulate full-time employment opportunities. We encourage all our students to take advantage of employment resources available through the University. One resource can be found through BYU Career Services (bridge.byu.edu). Students will be able to create an account, upload a resume, set an appointment with a career counselor, have networking opportunities, apply for jobs, contact employers, etc. In addition, important events on campus will be listed on this website. Two events to take note of are the STEM Fair and the Career Fair. The STEM Fair will be held Thursday, September 21, 2017 from 9:00am – 3:00pm in the Wilkinson Center Ballroom and Garden Court. The Career Fair will be held Thursday, October 5, 2017 from 9:30AM to 3:30PM in the Wilkinson Center Ballroom and Garden Court. For more information, visit <https://ucs.byu.edu/>.

Another resource can be found with our Internship and Career Service Coordinator, Ruth Dauwalder. You can contact Ruth at ruth@stat.byu.edu, by phone 801-422-4527, or stop by her office in 223G TMCB.

Summer Institute of Applied Statistics

Each summer, the BYU Department of Statistics hosts the Summer Institute of Applied Statistics. We invite a speaker to give lectures on certain statistical topics. The cost for graduate students is \$60.00. This price includes conference attendance, conference materials and “munch & mingle” breaks. The Department also hosts a dinner and luncheon that students can attend for an extra charge. If graduate students wish to attend the Summer Institute, speak to the department secretary about further details, or visit statistics.byu.edu.

Awards & Recognition

Alvin C. Rencher Mentorship

The Alvin C. Rencher Mentorship is the department's most prestigious mentorship, awarded to outstanding students to support their research. Dr. Rencher is remembered for his concern for individual students. He was a constant source of encouragement to all with whom he came in contact.

National Scholarships

The following are graduate scholarships available from the American Statistical Association and American Society for Quality. For more information, please contact the Graduate Coordinator or Department Secretary.

- Gertrude Cox Scholarship: for female full-time graduate students of U.S. or Canadian citizenship or permanent residents. Women in, or entering, the early stages of graduate training (MS or PhD) are especially encouraged to apply. \$1000 cash award. The application deadline is April 30. Statistics Department Alumni who have received this award include Stacey Evers, Kristen Piggott Shepherd, and Carly Pendleton.
- Ellis R. Ott Scholarship for Applied Statistics and Quality Management: scholarship recipient must be a student who is planning to enroll or is currently enrolled in a Master's degree– or higher-level U.S. or Canadian program that has a concentration in applied statistics and/or quality management. \$5000 cash award. The application deadline is April 1. Jeff Lingwall was the 2005–2006 recipient.
- Edward C. Bryant Scholarship: for outstanding graduate students in survey statistics. Criteria: potential to contribute to survey statistics, applied experience in survey statistics, performance in graduate school. \$1500 cash award. The application deadline is April 1.
- ASA Physical and Engineering Sciences Section ASQ Freund International Scholarship: for graduate study of the theory and application of quality control, quality assurance, quality improvement, and total quality management. JD Williams received this award as a PhD student at Va Tech.
- ASA Quality and Productivity Section Mary G. and Joseph Natrella Scholarship: supports master's and PhD students with a demonstrated interest in quality applications. This scholarship provides a grant and travel stipend to attend the Quality and Productivity Research Conference, at which the students present their research.
- FTC Student Grant: the Statistics Division of the American Society for Quality offers up to 5 grants per year for students who wish to attend the Fall Technical Conference (FTC). Grants are available for currently enrolled undergraduate and graduate students of statistics and quality management. The application deadline is August 1.
- BYU Graduate Research Fellowship Awards: a university award sponsored by Graduate Studies designed to support thesis and dissertation research and to encourage independent research, scholarship, and creative activity among graduate students. Two levels of award are granted: Doctoral, \$6,000; or Master's, \$4,500, to be awarded in the upcoming academic year. The award is to be used in support of students' research and creative work. All graduate students matriculated into a graduate program are eligible to apply. Those working toward doctoral degrees are eligible if they will have completed at least one year of graduate school by the following fall. Master's degree candidates must have been matriculated in their programs on or before fall semester. The application deadline is February 1. The application will open at the beginning of September and recommender letters will be due February 8. Announcement of the award recipients will be made before the end of spring term.

Requirements & Procedures

Degree Requirements

- Stat 535, 536, 537, 624, 637, 641, 642, 651, and 666
- 33.0 credit hours for thesis and 33.0 credit hours for selected project
- Pass the comprehensive exam – **please reference “Failing to meet the criteria to move on to the second year courses” section on pg. 30.**
- Fulfill 2 semesters of full-time registration (8.5 credits/semester)
- Oral defense – portfolio or selected project
- 3.0 cumulative GPA for Program of Study (ADV Form 3) and 3.0 GPA in comp classes
- Minimum Registration Requirement
- 2.0 credit hours of paid graduate tuition in final semester or semester in which oral defense is held

Program of Study

A student’s program of study is a carefully considered graduation plan, which includes all necessary elements for degree completion. It identifies the student’s major, required courses, and graduate committee. It may also include a minor. Students should complete a program of study change (see the Department Secretary) under the direction of their First-Year Committee Chair during the first semester of the students second year. Students should keep their study list current; changes can be made when authorized by their current Committee Chair and the Graduate Coordinator.

Required courses to include on the program of study are Stat 535, 536, 537, 624, 637, 641, 642, 651, and 666. The Committee Chair and the Graduate Coordinator must approve all courses on the study list. Acceptable elective graduate and undergraduate courses in statistics for both the thesis and project options are described in the Curriculum section of this handbook. Certain graduate courses in mathematics, computer science, economics, or sociology may also be approved. For the program of study, the maximum number of 300 and 400-level credits that can count toward a graduate degree is 9 hours. No 100- or 200-level credit can count toward a graduate degree.

Submitting a Study List

To officially submit a study list, fill out a Program of Study (ADV Form 3), available at <https://gradstudies.byu.edu/page/advisement-forms>. Once the form is filled out and the necessary signatures are obtained, give the form to the graduate secretary.

As students continue in the master’s program, they may want to modify their study list or add committee members to it. In order to makes changes, fill out the Program of Study Change Form (Form 3b), which is available at <https://gradstudies.byu.edu/page/advisement-forms>. Students must officially make the changes by filling out this form in order to avoid future confusion and possible problems with graduation. Please fill out the form, obtain the necessary signatures, and return it to the department secretary so that the changes can officially be entered online.

Study List Approval

When the student first submits a program of study, they may not have a full committee or the necessary credit hours outlined at the time, but it is important that the student obtains an approved study list as soon as possible. In order to

get a study list approved, students must have a full course plan with the appropriate number of credit hours according to their project or thesis option. The First-Year Committee Chair can approve the student's study list until they get a Project or Thesis Committee Chair and second committee member. Again, it is recommended that the student obtains an approved program of study as soon as possible.

Selected Project

In order to fulfill the requirements necessary to obtain a master's degree, the graduate student must complete a selected thesis or project. Students will spend a significant amount of time in the program researching, preparing, writing, and presenting on a topic of real consequence.

In general, a **thesis** will make a contribution to the development of statistical methodology, while a **project** involves the non-routine use of statistical methodology to make a contribution in another field. A thesis will generally lead to a paper submitted in a statistics journal. A project usually involves the application of statistics, and will often have a broader audience. It is recommended that the student speaks with their Committee Chair in making a decision as to which track to choose and which topic to work on. If the student is interested in doing a thesis, both the graduate student and a potential committee chair must speak with the Graduate Coordinator before it can be approved.

A **selected project** program requires a minimum of 33.0 credit hours, with 30.0 credit hours in coursework and 3.0 project hours (Stat 698R). Most students require more than one semester to complete the project and the 3.0 credits of Stat 698R can be divided over multiple semesters, except for the last semester in which they defend. Students must be enrolled in 2.0 credits of Stat 698R during the semester they defend to be compliant with graduate studies requirements.

Selected Project Format

All projects' will be printed and bound for a library copy. The format is as follows:

- 1) Title Page
- 2) Acknowledgements
- 3) Table of Contents
- 4) Project to be defended (Section 1) – This section will be a culmination of the research work
- 5) The collection of remaining class projects (Section 2)

Portfolio

Students may fulfill the project requirement with what we call a project portfolio. Students will place each written class project from classes taken in the first year and the first semester of the second year in a single document that will fulfill the project requirement. The student's committee will decide which project will need revision for the final defense. The student will be prepared to defend this project in the second semester of the second year.

All students will need to register on statmoodleg.byu.edu. Each student will want to click on the year of expected graduation. The Duo screen will appear and each student will sign-in with his or her BYU credentials. There will be an enrollment key required. The key is the year you click on (i.e. key for 2019 Graduates Course work is **2019**).

Each students will format their project in a particular format for the portfolio. To help with this process, students will always use the document discussed at the graduate meeting. Please talk to the department secretary if you have questions.

After each semester, all projects will be uploaded in the expected format to statmoodleg. This will be the central location for document retrieval for the students and their committee. Each committee will look over their assigned student's projects and decided which project will need to be revised and extended for the final defense. Once the revision has been completed and the committee chair approves, the student will need to schedule their final defense with their committee. Please see the department secretary for the paperwork.

Portfolio Format

All portfolios' will be printed and bound for a library copy. The format is as follows:

- 6) Title Page
- 7) Acknowledgements
- 8) Table of Contents
- 9) Project to be defended (Section 1) – please make sure an abstract is included at the beginning of your project
- 10) The collection of remaining projects (Section 2)

Choosing a Committee Chair and Committee Members

Upon admission to the graduate program, students will be assigned a First-Year Committee Chair. This advisor will assist with registration questions and will head the committee for a project portfolio defense. If a faculty member recruits a student to write another project, that faculty member will become the committee chair. Other committee members will be chosen by the Graduate Coordinator.

Departmental Evaluations

The Department Chair, the Graduate Coordinator, and the Committee will evaluate each student's progress as a graduate student periodically. First-year students will be evaluated at the end of fall and winter semester. Second-year students will be evaluated at the end of fall and winter semesters, and if necessary, at the end of summer term. The possible evaluations are satisfactory, marginal, and unsatisfactory. If one is rated as marginal or unsatisfactory, they will receive a written notification to that effect from the Department. This notification will detail the reason(s) for the rating and the steps that must be taken to return to satisfactory status. If the student feels their rating is unfair or in error, they may appeal the evaluation, in writing, to the Graduate Coordinator. If a student is rated with an unsatisfactory progress two semesters in a row or a marginal followed by an unsatisfactory, they will automatically be dismissed from the graduate program. Readmission to the graduate program is subject to university policies and procedures.

All students **must maintain at least a 3.0 GPA for all the courses** during each semester. This also includes **comp classes (see below)**. If their GPA drops below this level, their academic performance will result in a marginal rating. If the Comprehensive Exam is rated a fail, their academic performance will result in an unsatisfactory rating. If a student

was admitted provisionally and wishes to maintain a satisfactory rating, they must satisfy all provisions during their first semester in the program. Failure to comply with the standards of The Church of Jesus Christ of Latter-Day Saints or the Brigham Young University Honor Code may also result in an unsatisfactory rating.

Other reasons for getting a marginal or unsatisfactory rating include, but are not limited to: failure to provide an approved study list, failure to meet the requirements of a previous marginal or unsatisfactory rating, etc.

Comprehensive Exam

The comprehensive exam will assess each student's understanding of all important statistical concepts covered in Stat 535, 624, 641, and 642. Statistics graduate students **must have a 3.0 cumulative GPA or better in these courses as well as an overall 3.0 GPA for all classes** to take the exam. Grading is on a pass/fail basis, determined by the Graduate Faculty. Students will be informed as to whether they passed or failed the exam by a letter sent through the mail. Please note that the comprehensive exam can only be taken once. There are no retakes.

The Comprehensive Exam will be held Thursday and Friday, May 3 and May 4, 2018. All students eligible to take the exam will meet with the Graduate Coordinator on Thursday, April 26, 2018. The purpose of this meeting is to answer questions that students may have, and to discuss the format of the exam, the material that will be covered on the exam, and how to study for the exam.

If a student does not pass the exam, they will receive an unsatisfactory rating Winter Semester and will not be able to register for the second year of classes. Students will be advised by the Graduate Coordinator on pursuing employment options, the course required to finish the BS degree (if applicable), or courses that will assist the student in securing future employment. If one does not pass the exam, their status as a graduate student, including all privileges associated with that status, will be withdrawn from the program.

Failing to meet the criteria to move on to the second year courses

There are four reasons a student will not qualify to continue on to the second year of the program. These are: (1) a student receives two unsatisfactory ratings in a row, or a marginal rating followed by an unsatisfactory rating, (2) failing to maintain a 3.0 GPA in courses covered in the comprehensive exam, and thus not being allowed to sit for the exam, (3) failing to maintain a 3.0 GPA or better in overall course work and/or (4) failing the comprehensive exam. In case (1) and (3), the student will have failed to meet the requirements set forth by the graduate school. Readmission to the graduate program is subject to all university policies and procedures. In case (2), (3) and (4), a student may petition the graduate faculty to continue in the program, but not as a second year student. If the petition is approved, the following remedial actions will be required. For item 1, all courses covered in the comprehensive exam where the student earned less than a B must be retaken. The student may, at their discretion, take other first year graduate or advanced undergraduate courses that they feel might be of benefit. If, at the conclusion of the year, the GPA for the courses covered in the comprehensive exam is a 3.0 or better, the student may sit for the exam. For item 2, all courses where the comprehensive exam performance was not passing must be retaken. The student may, at their discretion, take other first year graduate or advanced undergraduate courses that they feel might be of benefit. If, at the conclusion of the year, the GPA for the courses covered in the comprehensive exam is a 3.0 or better, the student may sit for the exam. In both of these cases, if the comprehensive exam is failed after the year of remedial work, the student will be required to leave the program. The student will be responsible for all tuition costs associated with courses taken during the remedial second year. The department guarantees half tuition when the comprehensive exam is passed. Students should also be aware that they will not be allowed to graduate if the GPA for courses on the Program of Study (Form AV3) falls below a 3.0. The GPA can be raised by retaking courses or by getting high enough grades in other classes to raise the GPA to or above the 3.0 level.

Readmission

Upon department and graduate dean approval to resume graduate study, former graduate students who were dropped for failure to meet the minimum registration requirement or for any other reason, and who wish to resume their graduate studies, must submit an Application to Resume Graduate Study (GS Form 6 available online at <https://gradstudies.byu.edu/page/form-list>), and pay a \$600-nonrefundable processing fee. International students will also need to submit new bank statements or sponsor contract (GS I-2). Students should expect their previous course work to be reevaluated and their degree requirements to reflect current expectations of the program. Student applications for readmission will only be considered three times per year, in April, August, and December. The graduate faculty, in consultation with the applicant's former project or thesis Committee Chair and the Graduate Coordinator, will make the decision to accept or deny readmission.

Time Limitations

The Statistics MS program is designed to be completed within two years. Graduate Studies stipulates that **all master's degrees must be completed within five years of the first semester of enrollment in the program or from the first course taken**, whichever comes first. Matriculation in the Statistics MS program may be terminated at any time for failure to make satisfactory progress toward the degree.

Leave of Absence

Students may request a leave of absence for the following reasons:

1. **Medical** Students must present a letter from a doctor—up to one year at a time
2. **Military** Students must present military orders—up to one year at a time
3. **Mission** Students must present a mission call—up to three years

Students will not be evaluated during a leave of absence, but the original five-year time limit in which to complete their degree will still apply. If a student needs to take a leave of absence, form ADV 5 will need to be filled out (<http://graduatestudies.byu.edu/content/advisement-forms-adv>)

Personal Decision to Leave the Program

Students may decide that they no longer wish to continue the MS program. In order to terminate graduate student status, form ADV 7 (<http://graduatestudies.byu.edu/content/advisement-forms-adv>) will need to be filled out. **Please note** that if the student decides to discontinue during the semester, they will be responsible for paying the tuition and any fees incurred for discontinuing. This even applies if the tuition was paid by scholarship. The scholarship money will be returned to the department and the student will be billed for the full tuition amount. The full amount applies if one terminates early in the semester, the middle, or even the last few days. In addition, employment will be terminated the day the discontinuance is filed. The students will not be allowed to work after that date.

Before Applying for Graduation

Before applying for graduation, students will need to make sure that they have accomplished the following requirements:

- Course requirements complete or in process of completion
- Enrollment in at least 2.0 credit hours of Stat 698R or 699R final semester of defense

- Tuition paid for 2.0 credits in the final semester in which a student defense is held. If a student graduates in August, they are only required to pay tuition for 2.0 credits in spring term, 2.0 credits in summer term, or 2.0 credits total over both spring and summer terms
- The project portfolio must be submitted to the Committee Chair
- If the student is doing another research project, the prospectus must be defended , and the final document must be submitted to the Committee Chair
- Comprehensive Exam passed
- Program of Study and Committee approved

Graduation

To graduate in April, the following deadlines must be met:

- Project portfolio submitted to committee by March 22, 2019 and defended no later than April 5, 2019
- Alternative research project submitted to committee by March 22, 2019 and defended no later than April 5, 2019

Graduate Checkout List

- Return all keys to Ruth Dauwalder in 223G TMCB
- Return any textbooks or other materials used as a TA to the Secretary
- Leave department computer in office and delete all unnecessary files; back up any files onto a personal storage device
- Remove all belongings from the assigned graduate office (1 week after graduation)—anything left will be thrown out

BS/MS Statistics Program

BS/MS Statistics Students

The Department of Statistics has a five-year integrated program. An Integrated master's student is one who chooses a course of study that will enable them to get their Bachelor's and Master's degrees in five years

For the first four years, integrated students will be considered an undergraduate. When they enter their senior year, they may begin to take master's level classes that will apply to their MS degree.

During the fifth year of the program students are required to apply to the master's program as soon as they are notified of the results of the comprehensive exam. Once the student has obtained graduate status, they will need to pay graduate tuition. A BS/MS student is required to pay for two semesters of graduate tuition. If the student received an undergraduate university scholarship, their entry into the graduate program cancels that scholarship.

When the student has become an official graduate student, they will need to fill out the "Notification of Integrated or Joint Program Status" (form GS 5) and give the completed form to the department secretary. This form will allow graduate studies to know of the student's status and to mark the system accordingly.

BS/MS Graduation

If the student applies for graduation and fails to meet the necessary requirements by the established deadlines, it will be the student's responsibility to withdraw or defer their BS application for graduation. It is a requirement that if the student is a part of the Integrated program that they **do not** apply for graduation until their master's degree is complete. At that time the student will receive both their bachelor's and master's degree. Please note that if the bachelor's degree is obtained before fulfilling the requirements for the master's degree, many of the courses on the Program of Study list will no longer be counted for graduate credit.

Please be aware that students are responsible for ensuring that they complete all necessary coursework for their undergraduate degree. It will be up to the student to seek advisement for their GE and other undergraduate requirements; the Department of Statistics will primarily be concerned with their graduate coursework.

Rules of Conduct

Brigham Young University Honor Code

Brigham Young University, Brigham Young University-Hawaii, Brigham Young University-Idaho, and LDS Business College exist to provide an education in an atmosphere consistent with the ideals and principles of The Church of Jesus Christ of Latter-day Saints. That atmosphere is created and preserved through commitment to conduct that reflects those ideals and principles. Members of the faculty, administration, staff, and student body at BYU, BYU-H, BYU-I, and LDSBC are selected and retained from among individuals who voluntarily live the principles of the gospel of Jesus Christ. Observance of such is a specific condition of employment and admission. Those individuals who are not members of The Church of Jesus Christ of Latter-day Saints are also expected to maintain the same standards of conduct, except church attendance. All who represent BYU, BYU-H, BYU-I, and LDSBC are to maintain the highest standards of honor, integrity, morality, and consideration of others in personal behavior. By accepting appointment on the faculty, continuing in employment, or continuing class enrollment, individuals evidence their commitment to observe the Honor Code standards approved by the Board of Trustees "at all times and...in all places" (Mosiah 18:9).

We believe in being honest, true, chaste, benevolent, virtuous, and in doing good to all men....If there is anything virtuous, lovely, or of good report or praiseworthy, we seek after these things. (Thirteenth Article of Faith.)

As a matter of personal commitment, the faculty, administration, staff, and students of Brigham Young University, Brigham Young University-Hawaii, BYU-I, and LDS Business College seek to demonstrate in daily living on and off-campus those moral virtues encompassed in the gospel of Jesus Christ, and will:

- Be honest
- Live a chaste and virtuous life
- Obey the law and all campus policies
- Use clean language
- Respect others
- Abstain from alcoholic beverages, tobacco, tea, coffee, and substance abuse
- Participate regularly in church services
- Observe Dress and Grooming Standards
- Encourage others in their commitment to comply with the Honor Code

Specific Policies Embodied in the Honor Code

Specific policies embodied in the Honor Code include (1) the Academic Honesty Policy, (2) the Dress and Grooming Standards, (3) the Residential Living Standards, and (4) the Continuing Student Ecclesiastical Endorsement Requirement. (Refer to institutional policies for more detailed information.)

Academic Honesty Policy

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim.

BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law.

Intentional Plagiarism - Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote.

Inadvertent Plagiarism - Inadvertent plagiarism involves the inappropriate, but nondeliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance.

Examples of plagiarism include:

Direct Plagiarism - The verbatim copying of an original source without acknowledging the source.

Paraphrased Plagiarism - the paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own.

Plagiarism Mosaic - The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source.

Insufficient Acknowledgement - The partial or incomplete attribution of words, ideas, or data from an original source.

Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

Fabrication or Falsification

Fabrication or falsification is a form of dishonesty where a student invents or distorts the origin or content of information used as authority. Examples include:

- Citing a source that does not exist.
- Attributing to a source ideas and information that are not included in the source.
- Citing a source for a proposition that it does not support.
- Citing a source in a bibliography when the source was neither consulted nor cited in the body of the paper.
- Intentionally distorting the meaning or applicability of data.
- Inventing data or statistical results to support conclusions.

Cheating

Cheating is a form of dishonesty where a student attempts to give the appearance of a level of knowledge or skill that the student has not obtained. Examples include:

- Copying from another person's work during an examination or while completing an assignment.
- Allowing someone to copy during an examination or while completing an assignment.
- Using unauthorized materials during an examination or while completing an assignment.
- Collaborating on an examination or assignment without authorization.
- Taking an examination or completing an assignment for another, or permitting another to take an examination or to complete an assignment in place of the student.

Other Academic Misconduct

Academic misconduct includes other academically dishonest, deceitful, or inappropriate acts that are intentionally committed. Examples of such acts include but are not limited to:

- Inappropriately providing or receiving information or academic work so as to gain unfair advantage over others.
- Planning with another to commit any act of academic dishonesty.
- Attempting to gain an unfair academic advantage for oneself or another by bribery or by any act of offering, giving, receiving, or soliciting anything of value to another for such purpose.
- Changing or altering grades or other official educational records.
- Obtaining or providing to another an unadministered test or answers to an unadministered test.
- Breaking and entering into a building or office for the purpose of obtaining an unauthorized test.
- Continuing work on an examination or assignment after the allocated time has elapsed.
- Submitting the same work for more than one class without disclosure and approval.

Faculty are responsible to establish and communicate to students their expectations of behavior with respect to academic honesty and the student's conduct in the course. Responsible instructors will investigate alleged academic dishonesty, determine the facts, and take appropriate action. In a case where academic dishonesty is determined to have occurred, the instructor must notify the Honor Code Office of the incident as a means of encouraging behavior change and discouraging repeated violations. In addition, the instructor shall consult with the department chair concerning disciplinary actions to be taken. If the incident of academic dishonesty involves the violation of a public law, such as breaking and entering into an office or stealing an examination, the act should also be reported to appropriate law enforcement officials. If an affected student disagrees with the determination or action and is unable to resolve the matter to the mutual satisfaction of the student and the instructor, the student may have the matter reviewed through the university's Student Academic Grievance Procedure.

Applicable Actions

A wide range of possible actions exists for cases of academic dishonesty. Instructors should take actions that are appropriate under the circumstances and should attempt to reach an understanding with the affected student on the imposition of an appropriate action. In some cases, the department, the college, or the university may also take actions independent of the instructor. Examples of possible actions include but are not limited to the following:

For instructors (in consultation with the department chair):

- Reprimanding the student orally or in writing.
- Requiring work affected by the academic dishonesty to be redone.
- Administering a lower or failing grade on the affected assignment or test.
- Administering a lower or failing grade for the course (even if the student withdraws from the course).

- Removing the student from the course.

For departments and colleges:

- After consulting with the Honor Code Office, dismissing the student from the program, department, or college.
- Recommending probation, suspension, or dismissal from the university.

For the university:

The university may elect to discipline a student for academic dishonesty in addition to, or independently from, discipline imposed by a faculty member, a department, or a college. University discipline may be administered through the Honor Code Office or through the Dean of Student's Office. The Honor Code Office will maintain a record of all violations of this Academic Honesty Policy reported to it by the faculty. The university may elect to place an affected student on probation, or to suspend or dismiss the student, and to place a temporary or permanent notation on the student's permanent academic transcript indicating that he or she was suspended or dismissed due to academic misconduct.

The university may report an incident of academic misconduct to appropriate law enforcement officials and may pursue the prosecution of an affected student if the act in question involves the commission of a crime.

Shared Responsibility Policy Statement

Students are responsible not only to adhere to the Honor Code requirement to be honest but also to assist other students in fulfilling their commitment to be honest.

Faculty Academic Integrity

The substantive standards of academic honesty stated in this policy apply a fortiori to faculty. Indeed, all members of the BYU community are expected to act according to the highest principles of academic integrity.

Dress and Grooming Standards

The dress and grooming of both men and women should always be modest, neat, and clean, consistent with the dignity adherent to representing The Church of Jesus Christ of Latter-day Saints and any of its institutions of higher education.

Modesty and cleanliness are important values that reflect personal dignity and integrity, through which students, staff, and faculty represent the principles and standards of the Church. Members of the BYU community commit themselves to observe the following standards, which reflect the direction of the Board of Trustees and the Church publication *For the Strength of Youth*. The Dress and Grooming Standards are as follows:

Men

A clean and well-cared-for appearance should be maintained. Clothing is inappropriate when it is sleeveless, revealing, or form fitting. Shorts must be knee-length or longer. Hairstyles should be clean and neat, avoiding extreme styles or colors, and trimmed above the collar, leaving the ear uncovered. Sideburns should not extend below the earlobe or onto the cheek. If worn, moustaches should be neatly trimmed and may not extend beyond or below the corners of the mouth. Men are expected to be clean-shaven; beards are not acceptable. Earrings and other body piercing are not acceptable. Shoes should be worn in all public campus areas.

Women

A clean and well-cared-for appearance should be maintained. Clothing is inappropriate when it is sleeveless, strapless, backless, or revealing; has slits above the knee; or is form fitting. Dresses, skirts, and shorts must be knee-length or longer. Hairstyles should be clean and neat, avoiding extremes in styles or colors. Excessive ear piercing (more than one per ear) and all other body piercing are not acceptable. Shoes should be worn in all public campus areas.

Residential Living Standards

As stated in the Honor Code, Brigham Young University is committed to providing a learning atmosphere consistent with the principles of the Church. The university is likewise committed to creating such an atmosphere for students residing on and off campus and between semesters. To achieve this, BYU has established living standards to help students learn some of the high ideals and principles of behavior expected at Brigham Young University. Therefore, the university requires students to adhere to the following applicable standards:

Housing

All single BYU undergraduate students who are not residing with their parents must live in university on-campus or university-contracted, sex-segregated housing unless specifically excused in writing by the Off-Campus Housing Office.

Visiting Hours

Off-Campus Visiting Hours, Wyview Park, and Foreign Language Student Residence

Visitors of the opposite sex are permitted in living rooms and kitchens but not in the bedrooms in off-campus living units, Wyview Park, and the Foreign Language Student Residence. The use of the bathroom areas by members of the opposite sex is not appropriate unless emergency or civility dictates otherwise, and then only if the safety, privacy, and sensitivity of other residents are not jeopardized. Visiting hours may begin after 9:00 a.m. and extend until 12:00 midnight. Friday night visiting hours may extend until 1:30 a.m. Landlords may establish a shorter visiting period if proper notice is given to students.

Guests

All guests of students must comply with the Residential Living Standards while on the premises of university-contracted housing. Students are expected to help their guests and other residents understand and fulfill their responsibility under the Residential Living Standards and the Honor Code. Approval forms must be submitted for all guest requests, and are available from hall advisors and area offices. Approved guests may stay a maximum of three nights.

Maintaining the Standards

Violations of these standards may be reported to the Honor Code Office, 4440 WSC, (801) 422-2847, or the Off-Campus Housing Office, (801) 422-1513.

Continuing Student Ecclesiastical Endorsement

Students are required to be in good Honor Code standing to be admitted to, continue enrollment at, and graduate from BYU. In conjunction with this requirement, all enrolled continuing undergraduate, graduate, intern, and Study Abroad students are required to obtain a Continuing Student Ecclesiastical Endorsement for each new academic year. Students must have their endorsements completed, turned in, and processed by the Honor Code Office before they can register for fall semester or any semester thereafter. To avoid registration delays, endorsement should be submitted to the Honor Code Office by March 15. Those applying to BYU should use the new-student Admissions Application Part 3 endorsement and submit to Admissions, D-155 ASB.

LDS students may be endorsed only by the bishop of the ward (1) in which they live and (2) that holds their current Church membership record.

Non-LDS students are to be endorsed by (1) the local ecclesiastical leader if the student is an active member of the congregation, (2) the bishop of the LDS ward in which they currently reside, or (3) the nondenominational BYU chaplain.

Former LDS students are not eligible to receive an ecclesiastical endorsement (See Withdrawn or Denied Ecclesiastical Endorsement below).

Requirements

Whether on or off campus or between semesters, all students are expected to abide by the Honor Code, which includes (1) the Academic Honesty Policy, (2) the Dress and Grooming Standards, and (3) the applicable Residential Living Standards. Students are required to be in good Honor Code standing to graduate.

LDS students must fulfill their duty in The Church of Jesus Christ of Latter-day Saints, attend Church meetings, and abide by the rules and standards of the Church on and off campus.

Students who are not members of The Church of Jesus Christ of Latter-day Saints are also expected to maintain the same standards of conduct. They are encouraged to participate in services of their preferred religion. All students must be in good Honor Code standing to graduate, to receive a diploma, and to have the degree posted.

Withdrawn or Denied Ecclesiastical Endorsement

An ecclesiastical leader may withdraw a student's endorsement at any time or may decline to endorse a continuing student if the leader determines that the student is no longer eligible for the endorsement. If an endorsement is withdrawn or if a Continuing Student Ecclesiastical Endorsement is denied, no confessional information is exchanged without authorization from the student. The withdrawal of a student's ecclesiastical endorsement automatically results in the loss of good Honor Code standing. Students who are not in good Honor Code standing must discontinue enrollment. Also, they are not eligible for graduation, even if they have otherwise completed all necessary coursework. Excommunication, disfellowshipment, or disaffiliation from The Church of Jesus Christ of Latter-day Saints automatically results in the withdrawal of the student's ecclesiastical endorsement and the loss of good Honor Code standing. Disaffiliation is defined for purposes of this policy as removal of an individual's name from the official records of the Church.

The decision to withdraw an ecclesiastical endorsement or to deny a Continuing Student Ecclesiastical Endorsement may be appealed through appropriate ecclesiastical leaders only. As a matter of practice, BYU does not intervene in ecclesiastical matters or endorsements. However, a student may petition the Dean of Students Office to allow an exception to the ecclesiastical endorsement requirement. As part of the petition, the student must (i) complete an Application for Exception to Policy (this form may be obtained from the Dean of Students Office); (ii) prepare a written statement outlining the reasons why the university should allow an exception; and (iii) within five

business days of receiving notice that the ecclesiastical endorsement has been withdrawn or that a Continuing Student Ecclesiastical Endorsement has been denied, submit the completed application and relevant statements to the Dean of Students Office for consideration.

When considering the petition, the dean of students will determine whether the student has observed and continues to observe the standards of the Honor Code or has demonstrated other sufficiently compelling grounds to warrant an exception to the university's ecclesiastical endorsement requirement. The dean of students will not review the ecclesiastical leader's decision to withdraw or deny endorsement or the process for reaching that decision. The dean of students and other university officials will not discuss confidential matters with the student's present or former ecclesiastical leaders unless the student voluntarily signs a release allowing that communication. The dean of students may also choose to personally interview the student, who may further explain the circumstances which might justify an exception to the ecclesiastical endorsement requirement. The student bears the burden of persuasion that he or she should be considered to be in good Honor Code standing, notwithstanding the lack of an ecclesiastical endorsement. The dean of students' decision regarding the petition will be reviewed by the vice president of student life if requested by the student. The decision by the vice president of student life is final.

The Admission Policy provides a separate Application for Exception process for applicants who cannot obtain an ecclesiastical endorsement in support of their application for admission to the university.

Conduct

All students shall be required to conduct themselves in a manner consistent with the principles of The Church of Jesus Christ of Latter-day Saints and the BYU Honor Code. Furthermore, all students are required to abstain from possessing, serving, or consuming alcoholic beverages, tobacco, tea, coffee, or harmful drugs. Involvement with gambling; pornographic, erotic, or indecent material; disorderly, obscene, or indecent conduct or expressions; or with other offensive materials, expressions, or conduct or disruption of the peace that, in the sole discretion and judgment of the university, is inconsistent with the principles of the Church and the BYU Honor Code is not permitted in student housing. All guests of students must comply with the Residential Living Standards while on the premises of university-approved housing. All students are required to know the Dress and Grooming Standards and abide by them. (The standards expressed above apply to students at all times whether on or off campus.)

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. While inadvertent plagiarism is not a violation of the Honor Code, it is a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education, where all members of the university are expected to acknowledge the original intellectual work of others that is included in one's own work. In some cases, plagiarism may also involve violations of copyright law.

Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote.

Inadvertent plagiarism involves the inappropriate, but nondeliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply being insufficiently careful in research and writing. Although not a

violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance.

Examples of plagiarism include:

- Direct Plagiarism: The verbatim copying of an original source without acknowledging the source.
- Paraphrased Plagiarism: The paraphrasing, without acknowledgment, of ideas from another that the reader might mistake for your own.
- Plagiarism Mosaic: The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source.
- Insufficient Acknowledgment: The partial or incomplete attribution of words, ideas, or data from an original source.

Plagiarism may occur with respect to unpublished as well as published material. Acts of copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

EEO Statement on discrimination and harassment

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education and pertains to admissions, academic and athletic programs, and university-sponsored activities. Title IX also prohibits sexual harassment of students by university employees, other students, and visitors to campus. If you encounter sexual harassment or gender-based discrimination, please talk to your professor or the Graduate Coordinator; contact the Equal Employment Office at 801-422-5895 or 1-888-238-1062 (24-hours) or <http://www.ethicspoint.com>; or contact the Honor Code Office at 801-422-2847.

Sexual Misconduct Policy

Brigham Young University is committed to promoting and maintaining a safe and respectful environment for the campus community. The university will not tolerate sexual harassment, sexual violence, domestic violence, dating violence, or stalking (collectively "Sexual Misconduct") perpetrated by or against any university students, university employees, participants in university programs and activities, or visitors to its campus. This policy prohibits Sexual Misconduct by university employees (which include all faculty, staff, and administrative employees) and students, whether the behavior occurs on or off campus. This policy also prohibits Sexual Misconduct by or against visitors to the university (such as independent contractors, vendors, visiting lecturers, and visiting student-athletes).

The university will take immediate and appropriate steps to stop Sexual Misconduct, prevent its recurrence, and address its effects. Any person who violates this policy may be subject to discipline up to and including termination of employment, suspension, dismissal, and a ban from campus, depending on the circumstances and the severity of the violation and the violator's status as an employee, student, or visitor.

The university will work to prevent Sexual Misconduct and address reports of Sexual Misconduct by

- educating members of the campus community about this policy and applicable laws;
- promptly addressing and resolving reports of Sexual Misconduct in accordance with this policy;
- protecting the rights of all parties involved in a complaint; and
- imposing appropriate discipline against those who have engaged in Sexual Misconduct.

Individuals should seek to resolve incidents of Sexual Misconduct by following the procedures set forth in Section IV of this policy.

The Department of Statistics has a copy of the entire policy on file in the front office. Students are welcome to stop by the office to read the document or to go to <https://policy.byu.edu/view/index.php?p=155>.

Ownership of Research

Brigham Young University strives to maintain an environment of open inquiry for the pursuit of truth. In connection with your graduate studies and Brigham Young University, you will be given various assignments and opportunities to engage in scholarly work. Both the research for your project or thesis and any consulting you might do through the Center for Statistical Consultation and Collaborative Research are examples of this type of scholarly work. You may or may not receive direct financial assistance (research assistantships, scholarships, tuition waivers, etc.) in connection with this work. However, you do receive indirect support for your education; the university and its sponsor, The Church of Jesus Christ of Latter-day Saints, provide approximately two-thirds of the cost of your education. Therefore, Brigham Young University retains all rights (including rights to income from sales or licensing), ownership, and title to any scholarly work you perform in connection with your education here. This includes, but is not limited to, data, formulae, computer programs, projects, reports, research papers, copyrights, process patents and other technical information developed by you to satisfy course requirements or department assignments.

This retention of ownership allows the university to carry out its academic mission, fulfill external obligations, and ensure access to scholarship in the future. You have the right to copyright your project or thesis if you desire.

Confidentiality of Research

As a graduate student, in order to work for the Department of Statistics you must sign a Nondisclosure Agreement indicating your willingness to respect the confidentiality of certain research or other work you might perform for the department. This agreement is necessary to participate in research or consulting activities at Brigham Young University. You should sign this agreement during the first week of your initial semester or term as a graduate student and turn it in to Ruth Dauwalder.

To receive a comprehensive list of all Brigham Young University policy, please go to <https://policy.byu.edu/>.