STATE UNIVERSITY OF NEW YORK AT BUFFALO

DEPARTMENT OF BIOSTATISTICS

GRADUATE STUDENT HANDBOOK

Updated 7/22/2021

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BIOSTATISTICS AT THE UNIVERSITY AT BUFFALO

The Department of Biostatistics' roots at the University at Buffalo stem from the Department of Statistics, which has had a continuous stream of students since September 1, 1963. During the early 1970's, there were 13 tenure-track faculty. At that time, the Department had a world-class reputation, being considered among the top 10 in the country. Over time, certain members were attracted elsewhere. One left to establish the renowned Department of Biostatistics at Harvard; one became Dean of the School of Statistics at Minnesota, etc. Since the middle 1990's the long-range plan of the Administration was to develop a full featured department of biostatistics. As part of that plan the administration transferred all its resources into the Department of Social and Preventive Medicine in the School of Medicine and Biomedical Sciences on 9/1/1998, creating the Division of Biostatistics.

On July 1, 2003 the Administration converted the Division of Biostatistics into a full featured Department of Biostatistics. The Department of Biostatistics was established as part of the master plan for the newly formed School of Public Health and Health Professions at UB. A strong Department of Biostatistics is essential towards the goal of accreditation in the area of public health. In a 2002 memorandum of understanding with the State University of New York (SUNY), the development of the biostatistics program at UB was listed as a top research priority. The PhD program in Biostatistics at UB serves as one of the three mandatory PhD programs utilized in our School's public health accreditation application.

This new organization allowed for the development of graduate programs in biostatistics and for a more centralized coordination research activities of applied and theoretical instruction. The Department includes from faculty members from the Department of Biostatistics at Roswell Park Cancer Institute and from the Gynecologic Oncology Group. These affiliations, in addition to collaborations with researchers in the Center of Excellence in Bioinformatics, the College of Dentistry, the College of Medicine and Biomedical Sciences, the College of Nursing, the School of Pharmacy and the School of Public Health and Health Professions, provide a rich environment for the education and training of biostatisticians. In addition to their classroom studies, the Department's students have opportunities to gain practical training through mentored, hands-on data analyses in the context of exciting biological and health science research projects. It is an exciting environment and an exciting time for biostatistics at the University at Buffalo.

MISSION OF THE DEPARTMENT

The mission of the Department of Biostatistics is to educate and train biostatistical scientists; to collaborate with researchers in the clinical and public health sciences; to conduct methodological

research; to collaborate with local, state, or national health institutions; and to serve our University and the statistics and public health professions.

TEACHING AND TRAINING PHILOSOPHY

Our philosophy of education is that students best learn what they apply and what they teach. Practical training requirements are included in the MPH, MA, MS and PhD programs. The Department seeks to provide opportunities for students to communicate their knowledge to others, either through classroom presentations, student seminars, or assignment to teaching assistantships.

Faculty bring a philosophy to the classroom and to their mentoring that is consistent with the Department's goals to promote and extend the proper use of statistics in the health sciences, to contribute substantively and methodologically to the advancement of knowledge in health related disciplines, and to aid the advance of evidenced-based medicine, healthcare, public health practice and policy making. This emphasis brings a high degree of relevance to the classroom and enhances students' opportunities to work as apprentices with faculty. Faculty and students together work with collaborators in the School of Public Health and Health Professions, the School of Medicine and Biomedical Sciences, and at the Roswell Park Cancer Institute. Students receive practical training in these environments in parallel to their formal coursework.

We believe in a holistic approach to education. The Department is dedicated to providing a wide variety of educational, research, and collaborative opportunities to students in a friendly, respectful, nurturing, and stimulating environment that promotes intellectual and professional development.

RESEARCH ACTIVITIES

The Departmental faculty engage in theoretical, methodological, and applied statistical research. This work is often motivated by their collaborations with health science researchers. There is ongoing involvement in medical informatics and bioinformatics, cancer research, maternal and child health, research on addictions, and epidemiology. Projects span a wide range of topics such as biosurveillance, metabonomics, microarray data analysis, pattern recognition and classification, proteomics, statistical genetics, clinical trials to assess the efficacy of cancer treatments, epidemiologic studies of environmental risk factors, and outcomes research.

DEPARTMENT LOCATION

Department Phone Number: (716)829-3690
706 Kimball Tower – South Campus

FACULTY

Chair and Professor

Gregory E. Wilding, PhD University of Rochester
Research interests: clinical trial design, permutation tests, resampling techniques, goodness-of-fit tests, distributional characterizations, copulas, tests of independence, biostatistics.

Associate Chair, Graduate Program Director and Professor

Lili Tian, PhD University of Rochester
Research interests: goodness-of-fit testing; skewed data analysis; order-restricted inference; inverse Gaussian models; design of clinical trials; longitudinal data analysis; survival analysis; analysis of medical expenditure data; generalized variable approach; statistical genetics; cancer research; behavioral studies; health policy studies.

Professor

Marianthi Markatou, PhD Pennsylvania State University
Statistical Sciences (Statistics and Biostatistics): Problems in model assessment and selection, robustness, mixture models, statistical distances, biomarker development and ROC analysis, high dimensional data analysis, large databases data analysis, surveillance in large databases, methods for the analysis of observational data. Interdisciplinary: Machine learning and data mining, text data mining, biomedical informatics, emerging safety sciences relevant to health, study of dependence in microarrays and proteomics data, comparative safety and comparative effectiveness research.

Albert Vexler, PhD Hebrew University of Jerusalem, Israel
Research interests: receiver operating characteristic curves analysis; measurement error; optimal designs; regression models; censored data; change point problems; sequential analysis; statistical epidemiology; biostatistics; applications of Bayesian approaches to tests; asymptomatic methods of statistics; forecasting; sampling; optimal testing; nonparametric tests; empirical likelihoods; renewal theory; tauberian theorems; time series; categorical

analysis; multivariate analysis; multivariate testing of complex hypotheses; factor and principal component analysis

Jihnhee Yu, PhD — Texas A & M University
Research interests: stochastic processes and small clinical trials

Research Professor

John Blessing, PhD — University at Buffalo
Clinical trials, Biostatistics Data Center Administration

Alan D. Hutson, PhD — University of Rochester
Biostatistics, clinical trials design, epidemiological modeling, Bioinformatics, computational methods and order statistics

Martin Thomas Morgan, PhD — University of Chicago

Dietrich Kuhlmann, PhD — University of Missouri
Undergraduate Program Director

Song Liu, PhD

Calyampudi Radhakrishna Rao, PhD — ScD Cambridge University
National Medical of Science Winner
Recipient of 27 honorary doctoral degrees in 16 countries

Research Associate Professors

Song Liu, PhD — University at Buffalo
Vice-Chair of Roswell Park Cancer Institute Dept. of Bioinformatics
Research interests: developing computational and statistical methods to discover genetic risk factors and biomarkers for predicting some human diseases such as cancer using integrative analysis of multi-dimensional data from biomedical science such as mircoarray, high throughput sequencing, etc.

Jonathan Lopez, PhD — University of Rochester

Michael Sill, PhD — University of Pittsburgh

Adaptive designs and inference, Phase I and II clinical trial development, exact methods for small sample sizes, translational research, differences between Bayesian & frequentist methods.

Associate Professors

Rachael Hageman-Blair, PhD — Case Western University
Research interests: mathematical biology, optimization, numerical analysis, inverse problems, statistics and scientific computing, methodology development for mathematical modeling and simulation of metabolic and genetic networks, data analysis including microarray and quantitative trait loci.

Chang-Xing Ma, PhD — Nankai University
MPH Concentration Co-Director
Statistical genetics and experimental design

Jeffrey Miecznikowski, PhD — Carnegie Mellon University
MS Program Co-Director
Research interests: bio-technical image analysis, array comparative genomic hybridization (aCGH) analysis, microarray analysis, nonparametric statistics, bootstrap methods, and software development

Assistant Professors

Saptarshi Chakraborty, PhD

Guan Yu, PhD — University of North Carolina, Chapel Hill
High Dimensional, statistical inference; statistical machine learning and data; mining neuroimaging statistics

Research Assistant Professors

Kristopher Attwood, PhD — University at Buffalo
Research interests: Clinical, observational and diagnostic studies, decision theory, research operations, and statistics education.

Joseph D. Consiglio, PhD — University at Buffalo

Danielle M. Enserro, PhD — Boston University

Virginia Filiaci, PhD — University at Buffalo
Gynecological Oncology Group, Roswell Park Comprehensive Cancer Center

Austin Miller, PhD — University at Buffalo
Research interests: The design and analysis of experimental, clinical and observational studies, measurement error models and structural equations modeling

Jianmin Wang, PhD — Iowa State University
Roswell Park Comprehensive Cancer Center

Qianqian Zhu, PhD — University at Buffalo
Roswell Park Comprehensive Cancer Center

Professors Emeriti

Randolph L. Carter, PhD — Iowa State University
Research interests: measurement error models, structural equation models, longitudinal data methods, risk assessment, biostatistics, radiation effects, epidemiological modeling, maternal and child health epidemiology

Adjunct Professors

Alan Hutson, PhD — University of Rochester

Leonid Khinkas, PhD — Voronezh State Univ., Voronezh, USSR

Adjunct Research Professors

Calyampudi Radhakrishna Rao, PhD — Purdue University

Adjunct Assistant Professor

William Brady, PhD	University at Buffalo
Kabir Jalal, PhD	University at Buffalo
Yijun Sun, PhD	University of Florida
Li Yan, PhD	University of Rochester PhD in Physics and University at Buffalo PhD in Biostatistics

PERSONNEL

Amy Barczykowski– Data Manager
Beth Ann Crvelin – Assistant to the Chair
Noreen D. McGuire – Academic Program Coordinator
Teresa Sikorski – Department Secretary

GRADUATE STUDENT ASSISTANTSHIPS AND BENEFITS

General information about financial support is available from the graduate School website for current students: http://grad.buffalo.edu/Current_Students.html

TYPES OF ASSISTANTSHIPS AVAILABLE

The Department of Biostatistics at the University at Buffalo supports graduate student education through teaching and research assistantships for qualified students. The types of assistantships available are: teaching assistant (TA) and graduate assistant (GA).

Teaching assistants are appointed half-time or one third-time depending on the assigned duties. Half-time TAs typically teach recitation sessions, hold office hours, and serve as graders. Tuition is paid at the in-state rate.

Graduate research assistantships are offered to the most qualified students who seek experience in the applications of statistics. GA/RA positions are designed to provide consulting or data analysis services to researchers in the health sciences, while providing students with on-the-job training under the supervision of a Biostatistics faculty mentor. Typically, students have completed at least one year of graduate level coursework before being assigned to a research assistantship. Most students who serve as an RA or GA will be appointed half-time (20 hours/wk) or one third-time (13 hours/wk). **PhD students will not be funded more than five years.**

A GPA of at least 3.0 with good academic standing and satisfactory performance of assistantship duties are required for reappointment.

OTHER BENEFITS

GRADUATE STUDENT TRAVEL AWARD

The graduate student travel award provides funding to students requesting financial assistance to present their research at professional. Students may submit a written request to the Department's Student Travel Committee. Since funds for student travel are limited, and the travel award must be approved PRIOR to submitting an abstract or making any travel arrangements, it is important to submit requests for funding well in advance of abstract submission deadlines. (http://sphhp.buffalo.edu/biostatistics/education/financial-assistance.html)

Important: Original receipts are required to receive reimbursement. All students should see the Assistant to the Chair *prior to incurring expenses* to discuss and understand the University and Departmental policies regarding travel. The department cannot cover items such as tax, liquor, or upgrades (hotel, air, transportation). Each student will be required to meet with the Assistant to the Chair to review policies.

Funding is NOT guaranteed and depends on availability of funds in the department and the number of requests received in any one year.

Student Travel Request Application Checklist

- ✓ One request per student per academic year (July 1 – June 30).
- ✓ Students must present either a poster or oral presentation.
- ✓ Presentations must be related to research associated with the student's degree while in the Department of Biostatistics.
- ✓ Students must submit an application in writing to the Student Travel Committee PRIOR to submitting an abstract. The application must include:
  - ✓ Name
  - ✓ Co-authors
  - ✓ Title and abstract
  - ✓ Mentor name (mentor needs to co-sign the request or send support letter)
  - ✓ Meeting details (conference, location, dates)
  - ✓ Meeting/abstract information website
  - ✓ List of expected expenses
- ✓ Funds can be used to cover meeting registration, transportation, hotel accommodations and per diem according to the rules/regulations set forth by the University at Buffalo.
- ✓ All presentations and posters should be acknowledged with the UB logo. Biostatistics should be the primary affiliation listed.
- ✓ All presentations and posters must be approved by the student's faculty mentor before presenting.
- ✓ A copy of the presentation or poster must be submitted to the department (small color version).

Richard Schmidt Award

The Richard Schmidt Award was established through the generosity of the late Professor Richard Schmidt and has received continuous support through charitable donations by alumni, faculty and colleagues of Dr. Schmidt. The award was established in 2004 to honor outstanding PhD performance and is awarded annually at the SPHHP Spring ceremony.

Sidney Addelman Award

The Sidney Addelman award was established in 2004 from an endowment from the former Department of Statistics. Dr. Sidney Addelman was a Professor in the Department of Statistics at UB prior to his retirement. The award was established in 2004 to honor outstanding Master's performance and is awarded annually at the SPHHP Spring ceremony.

Randolph L. Carter, PhD Award Fund

Established 2015 by a former student of Dr. Carter's in honor of Professor Emeritus and Fulbright-Nehru Academic & Professional Excellence Award winner Randolph L. Carter given to a graduate student who has demonstrated academic excellence and research potential in biostatistics. This award is given annually.

Tuition Scholarships

Doctoral students receiving a graduate assistantship, or doctoral students appointed as graduate assistants on grant funds paid through UB or the Research Foundation, may be eligible for a tuition scholarship. Students eligible for tuition scholarship will have their scholarship processed by the Graduate Program Coordinator for the applicable semesters. The scholarship covers only those courses required for the degree at the in-state rate. The student is responsible for the difference in tuition. The scholarship does not cover credit hours taken during the summer semester or courses that are repeated. Students are responsible for all comprehensive and activity fees and also for waiving the university health insurance, if they are covered by an outside carrier.

Those students who are not New York residents but who can become residents are required to so as soon as possible, no later than one year after their initial appointment.

Student Employee Health Insurance

Students receiving graduate assistantships are eligible to enroll in the State Student Employee Health Insurance Plan (SEHP). Domestic students who meet eligibility requirements may choose

between the University's mandatory student health insurance plan or the SEHP. F1 visa holders must enroll in the state sponsored plan. Students choosing to enroll in SEHP must enroll within 30 days of the effective date of their appointment. Enrollment sessions are held each Fall semester.

Tuition Scholarship Checklist:

- ✓ enroll in SEHP and attend health insurance orientation (if applicable)

ADVISEMENT AND SUPERVISION

Each student is able to meet with the Director of Graduate Studies or their academic advisor to assist in planning a program to meet his/her educational goals and to answer questions relating to graduate studies.

Students are expected to consult with the advisor or the Director of Graduate Studies prior to registration each semester. Failure to do so could result in a student's program not meeting the requirements necessary for graduation, which may delay or prevent degree conferral. PhD students will be required to complete an advisement sheet to review their progress each year in May. Completion of these sheets with the major advisor or Director of Graduate Studies is required.

Administrative questions should be directed to the Department's Director of Graduate Studies or the Academic Program Coordinator.

If a student wishes to change advisors, he/she should submit a request in writing to the Director of Graduate Studies. Changes will be made with the approval of the new advisor and the Director of Graduate Studies. The department will try to accommodate all student requests.

GRADUATE PROGRAMS IN BIOSTATISTICS

MASTER OF ARTS DEGREE (MA)

Coursework leading to a Master of Arts degree in Biostatistics typically takes two years to complete. A minimum of 30 credit hours is required. The student must pass two written comprehensive exams on the first-year applied and theoretical core course sequences. In addition, practical data analysis experience is required at a level commensurate with master's degree coursework. A practical training project is required. The student must prepare a paper for his/her committee and pass a final oral exam, which is a presentation and defense of their practical training project report.

Core Course Requirements

STA 503	Introduction to Applied Statistics I (3 credits)
STA 504	Introduction to Applied Statistics II (3 credits)
STA 521	Introduction to Theoretical Statistics I (3 credits)
STA 522	Introduction to Theoretical Statistics II (3 credits)*

Students are ***also required*** to take the following public health course:
CHB 550 Public Health and Population Well Being (3) - ***taught in the fall semester***

*Completion or demonstrated knowledge of the material in STA 511 (Advanced Statistical Computing) is a prerequisite for STA 522. Students who have not satisfied this prerequisite must take STA 511 in their first semester in the program. Three semesters of calculus and linear algebra are required before entry into the program.

- Full time Masters and PhD students must also register for STA 782 (0 credits) which is our department seminar held on Thursday afternoon. ***You are considered full time if you have an Application to Candidacy on file and full time status approved with the graduate school.*** MPH students have a separate seminar requirement.

All students are required to attend the weekly departmental seminar

To be more specific: To be more specific:

1) Attendance for all full-time students is mandatory at our 4p.m. Thursday seminar. Seminars scheduled outside that timeslot are optional. However, students are strongly urged to attend.

2) An attendance sheet will be administered at the beginning of each seminar that you will be required to sign in order to register your attendance.

3) You are expected to attend 80% of the seminars each semester. Failure to do so may delay your graduation date until seminar attendance is deemed adequate. TAs who fail to attend the seminar may lose their assistantships.

Elective Requirements

Students must take at least 15 hours of master's electives (ME). The following is a list of courses offered by the Department that can be used to satisfy this requirement:

STA 506	Intro to Statistical Computing (3)
STA 509	Statistical Genetics (3)
STA 511	Advanced Statistical Computing (3)
STA 515	Distribution-Free Inference (3)
STA 517	Categorical Data Analysis (3)
STA 525	Statistics for Bioinformatics (3)
STA 526	Design and Analysis of Clinical Experiments (3)
STA 531	Theory and Methods of Sample Surveys (3)
STA 536	Statistical Design and Analysis (3)
STA 537	Sequential Analysis (3)
STA 545	Data Mining I (3)
STA 546	Data Mining II (3)
STA 551	Stochastic Processes (3)
STA 561	Longitudinal Data Analysis and Time Series Analysis (3)
STA 567	Bayesian Analysis (3)
STA 571	Special Topics in Statistics (3)
STA 575	Survival Analysis (3)
STA 581	Multivariate Data Analysis (3)

(Note: STA 502, STA 527, STA 528 and STA 529 do not count toward the MA degree. STA 527, STA 528 and STA 529 do not count toward the MS degree). Six credits hours of either STA 600 or of coursework from outside the Department of Biostatistics can be taken to satisfy elective requirements provided the courses are relevant to the student's training as a biostatistical scientist and are approved by the student's advisor and the Director of Graduate Studies. Depending on the content, STA 600 Independent Study might or might not qualify. Also, any STA course that satisfies a requirement of the Department's PhD program can be used as a Master's elective. If a PhD course is used as a Master's elective, that course cannot be used subsequently to satisfy a PhD requirement without also taking an additional course to satisfy the Master's requirement retrospectively.

Practical Training Requirement/Data Analysis Project

Biostatistics Master's students are required to have at least one semester of practical training that involves the application of methods from their master's degree coursework to real data. This requirement can be satisfied by working under a faculty member in a consulting or collaborative research setting, by participating in an internship that has been approved by the student's advisor/committee. The student must submit a detailed written report of a data analysis project to their supervisory committee for evaluation at the final oral exam. The presentation of this report must be given to the committee in the form of a seminar announced to all faculty and students of the Department of Biostatistics.

Master's Exams

Students must pass two written exams on applied (503 and 504) and theoretical (521 and 522) core courses. These exams are taken in August at the end of the first year of study after completion of the core courses. Students must take both parts of the exam at that time. The department's examination committee will determine if each student's performance is satisfactory. Students not passing the applied exam must sit for the final exams of 503 and 504. Students not passing the theory exam must sit for the final exams of 521 and 522. The examination committee will determine if the student's performance is satisfactory on these tests. Any student that does not pass these follow up exams will be dismissed from the program. Toward the end of their second year, students must pass a final oral exam, which is a presentation and defense of their practical training project (see previous section.)

Supervisory Committee

When all core courses and the comprehensive exams have been successfully completed, the student selects a committee which consists of a major professor who is a member (or associate member) of the UB Graduate Faculty whose primary geographic appointment is in the Department of Biostatistics at UB or Department of Biostatistics and Bioinformatics at Roswell Park Comprehensive Cancer Center (RPCCC) and two additional committee members who are also members (or associate members) of the UB Graduate Faculty. At least one of all committee members should have primary appointments from Department of Biostatistics at UB. The committee needs to be approved by Director of Graduate Studies.

Thesis Option

A student who wishes to complete the master's thesis option may substitute up to six research hours (STA 700) for two master's elective courses **or** for the practical training requirement, provided they complete at least 12 credits of STA master's elective courses. A Master's thesis with general content pre-approved by the student's advisory committee is required. To replace practical training hours the thesis must include an in-depth analysis of data from the health or biological sciences. An oral presentation of the thesis must be given to the supervisory committee at a seminar announced to all faculty and students of the Department of Biostatistics. Two bound copies of the thesis must be submitted to the Graduate School and one bound copy to the Department. Copies should be bound in boards covered with blank imitation leather, with

The title and author's name embossed, not printed, on the front in gold and the author's last name, degree and year of conferral of the degree on the spine (also in gold). See the section entitled Dissertation and Final Defense for Guidelines for Thesis Preparation.

ADMINISTRATIVE REQUIREMENTS

These can be found at http://grad.buffalo.edu/Academics/Policies-Procedures.html (see University policy)

Time Limit to Complete the Degree. The time limit for obtaining the master's degree is four years from the date of matriculation in the department, not counting official leaves of absence. Students unable to complete the master's program within the time limit must petition the Graduate School for an extension of time to complete the degree. Students must provide a detailed description of work completed to date as well as a timeline for completion of the thesis/degree. Normally, extensions are approved for a maximum of one year. A total of more than two years will not be approved. Requests for extensions should be made at least two weeks prior to the start of the semester. ***Graduate Student Petition Forms*** are available at http://grad.buffalo.edu/Academics/Forms-for-Students.html. Be sure to indicate the dates of the extension, the reason for the request, and the intended date of degree completion. The Graduate School will not approve an extension for 'personal reasons'. You must be specific and present strong justification for your request.

Graduation: Students will apply for graduation through their HUB student center. The degree dates are either February 1st, June 1st, or August 31st. Please keep in mind deadlines for applying listed at the Graduate School website http://grad.buffalo.edu/succeed/graduate/requirements.html.

M-Form. The ***M-form*** (Multi-Purpose) is prepared by the Academic Program Coordinator and given to the student after all degree requirements have been completed for those students who are doing a thesis ONLY. Students who are doing a project do not need this form sent to the graduate school. You must provide the title and abstract of your project or thesis to the Academic Program Coordinator. This form must be signed by the major professor, committee members, and the Director of Graduate Studies to certify that the student has satisfactorily completed ALL academic requirements for the degree. A copy of the ***M-Form*** is placed in the student's file. The original must be received at the Graduate School by the following deadlines:

Friday before spring classes for a February 1 degree conferral
Last day of spring exams for a June 1 degree conferral
Friday before fall classes for a n August 31st degree conferral

CHECKLIST FOR MA DEGREE CONFERRAL

- Apply for graduation in HUB by the deadlines outlined by the Graduate School
- At least 30 graduate credit hours (including STA core courses) with at least an overall 'B' (3.0) average
- Satisfactory completion of MA exams (Theory and Applied)
- Success completion and presentation of Data Analysis Project
- Satisfactorily complete the public health course requirement
- Satisfactory attendance at the department seminars
- Continuous registration from the date of matriculation (unless on an approved leave of absence)
- If beyond the four-year time limit for completion of degree, an approved petition for extension of time to complete the degree is on file in the Graduate School

PhD DEGREE

To earn a PhD in Biostatistics, a student must pass the written Master's exams, complete coursework requirements, pass PhD qualifier exams, and complete a dissertation on a biostatistical topic approved by his/her supervisory committee. In addition, data analysis experience at a level commensurate with coursework is required.

A minimum of 72 credits beyond the bachelor's degree is required. All credits earned in fulfillment of the Master of Arts in Biostatistics degree at the University at Buffalo count toward this requirement. No more than 36 hours of approved courses can be transferred from another institution. Students who transfer into the Biostatistics Program with a Master's degree and have not taken STA 503, STA 504, STA 521, and STA 522, or the equivalent, are required to take these courses, and the credits earned will be accounted for as transferred credits. Other coursework requirements are given below.

The remainder of the required 72 credits may be earned through enrollment in the PhD program's core courses, approved electives that have not been counted to satisfy the requirements of the Master's degree, STA 781 (Reading and Research grading scale S or U), and STA 700 (Thesis Research grading scale S or U). Students may begin receiving credit for doctoral research hours in the semester after passing the qualifying exams.

Core Course Requirements

The following core courses are required for all Biostatistics PhD students:

STA 621	Theory of Statistical Inference (3)
STA 622	Limit Theory (3)
STA 641	Theory of Linear Models (3)
STA 642	Topics in Advanced Modeling (3)

Students are ***also required*** to have the following public health course:
CHB 550 Public Health and Population Well Being (3) taught in **fall semester**

Students who earned a master's degree from an accredited school of public health and have taken a similar public health course may seek a waiver from the Director of Graduate Studies.

- Full time Master's and PhD students must also register for STA 782 (0 credits) which is our department seminar held on Thursday afternoon.

All students are required to attend the weekly departmental seminar

To be more specific:

1) Attendance for all full-time students is mandatory at our Thursday seminar. Seminars scheduled outside that timeslot are optional. However, students are strongly urged to attend. Full-time students include PhD students currently working on their dissertations.
2) An attendance sheet will be administered at the beginning of each seminar that you will be required to sign in order to register your attendance.

3) You are expected to attend 80% of the seminars each semester. Failure to do so may delay your graduation date until seminar attendance is deemed adequate. TAs who fail to attend the seminar may lose their assistantships.

Elective Requirements

Students must take at least four PhD electives (PE). At least three must come from the following list of advanced Biostatistics courses:

STA 609	Advanced Statistical Genetics (3)
STA 612	Advanced Clinical Trial/Design Analysis (3)
STA 617	Advanced Categorical Data Analysis (3)
STA 661	Advanced Topics in Large Sample Theory (3)
STA 667	Advanced Bayesian Inference (3)
STA 671	Advanced Special Topics in Statistics (3)
STA 675	Advanced Survival Analysis (3)
STA 681	Multivariate Theory (3)
STA 745	Topics in Design and Analysis of Observational Studies (3)

The third elective may be an approved course from outside the Department of Biostatistics. If the non-major elective option is chosen, prior approval of the course by the student's supervisory committee and the Director of Graduate Studies is required. Non-major electives must be graduate level courses on topics that complement the student's education in biostatistics.

Practical Training Requirement

Biostatistics PhD students are required to complete practical training that involves the application of PhD level methods to the health or biological sciences. Students can satisfy this requirement by working under a faculty member in a consulting or collaborative research setting or by participating in an approved external internship program.

Students must submit a detailed written report of their work to their supervisory committee for evaluation. An oral presentation of this report must be given to the committee in the form of a seminar that is announced to all faculty and students of the Department of Biostatistics.

Responsible Conduct of Research (RCR) Training Requirement

All students admitted to a PhD program are required to document successful completion of "Responsible Conduct of Research" (RCR) training when they submit their Application to Candidacy (ATC) for their PhD degree. This training requirement may be fulfilled by either: (1.) enrolling in and passing PHI 640 *Graduate Research Ethics* or RPN 541 *Ethics and Conduct of Research (the department will not pay for these courses);* or (2.) completing the Collaborative Institutional Training Initiative (CITI) online Responsible Conduct of Research course with a score of 80% or higher. Students opting to complete the CITI online course must supply documentation of its successful completion with their Application to Candidacy.

Online Program in Responsible Conduct of Research

The University at Buffalo has an institutional membership in the CITI online RCR program. That online program can be accessed through the following website: http://www.citiprogram.org. Initially, the student needs to register and choose a password, which allows the program to be entered and reentered as many times as needed. Also, the student is asked, at the time of initial registration, to enter his/her name, mailing address, phone number, e-mail address, and UB person number. A database of UB participants is created using that information. There are four versions of the CITI online RCR course from which the student should choose the version most appropriate for his/her area of doctoral study: Biomedical Sciences, Social and Behavioral Sciences, Physical Sciences, or Humanities. The RCR program is comprised of a series of modules, each of which consists of readings and case studies and ends with a quiz covering the material. The program allows the student to enter and exit at any point and to re-take the quiz associated with each section. A minimum total score of 80% is required to pass the online course. Assistance is available online at the CITI website if any technical difficulties are encountered. Once the student has successfully completed the appropriate version of the CITI RCR program with a passing grade of 80% or higher, he/she must print the "Completion Report" from within the CITI program as documentation of successful completion and submit it with the PhD degree Application to Candidacy.

Students who enter the PhD program must demonstrate a course successfully taken in public health during their master's degree study from a CEPH accredited school. If no public health course can be shown, students will need to take a public health course approved by the Director of Graduate Studies to satisfy these requirements.

Qualifying Exams

To be admitted to candidacy for the PhD degree, students must pass three qualifying exams: two written and one oral.

The written exams, which are called Part I Qualifiers, cover applied and theoretical topics. The applied exam covers the topics taught in STA 641 and 642, while the theoretical exam covers STA 621 and 622. Students are allowed a maximum of two attempts to pass each Part I exam. Any student failing an exam twice will be dismissed from the program.

The oral exam, called the Part II Qualifier, can be taken after passing both Part I Qualifiers. The Part II exam is an oral defense of the student's proposed dissertation project. The dissertation proposal must be submitted in writing to members of the student's supervisory committee at least two weeks prior to the oral exam. This exam is conducted by the supervisory committee, but may be attended by any member of the faculty. Immediately after the Part II oral exam the supervisory committee will decide whether the student is qualified to continue work toward a PhD degree.

Upon successful completion of Part I and II exams, the student may apply for admission to candidacy for the PhD degree according to the rules of the University.

Supervisory Committee

When all core courses and the qualifying exams have been successfully completed, the student selects a committee which consists of a major professor who is a member of the UB Graduate Faculty whose primary geographic appointment is in the Department of Biostatistics at UB or Department of Biostatistics and Bioinformatics at Roswell Park Comprehensive Cancer Center (RPCCC) and two additional committee members who are also members of the UB Graduate Faculty. At least two of all committee members should have primary appointments from Department of Biostatistics at UB. The committee needs to be approved by Director of Graduate Studies.

The committee's responsibilities include:

1. Reviewing and approving the student’s program of study. This should be done soon after appointment of the committee;
2. Conducting the student's Part II oral exam and, thereby, discuss and approve or deny the student's dissertation proposal and plans to carry it out;
3. Approving or denying the student for candidacy into the PhD program;
4. Evaluating the student's progress on the dissertation soon after half of the work has been completed and making suggestions for completion;

5. Conducting the final oral exam. For the student to pass this exam, committee members must unanimously agree that the student has successfully defended the dissertation as independent, original research that furthers the knowledge of biostatistics. Final approval of the dissertation usually follows a successful performance on this oral exam. The committee, however, may pass the student and, in addition, require revisions to the dissertation in form or content. All committee members must indicate their final approval by signing the dissertation and the requisite University forms.

Dissertation and Final Defense

The student must submit his/her dissertation to the committee at least one month prior to his/her final defense. The presentation of the dissertation must be given to the committee at the final oral exam in the form of a seminar announced to all faculty and students of the Department of Biostatistics and, more generally, throughout the University.

A booklet entitled ***Guidelines for Graduation and Thesis and Dissertation Preparation*** is available on the web at www.grad.buffalo.edu or from the Graduate School Office of Student Services. Be sure to refer to this document before preparing your thesis/project/dissertation.

Several style manuals are available, including Strunk and White (1995), Turabian (1996) and the University of Chicago Press (1993), which will answer a host of questions regarding the technical aspects of preparing the thesis or dissertation.

One unbound copy of the dissertation must be submitted to each of the Graduate School (submitted electronically), the Department, and to the student's major professor.

ADMINISTRATIVE REQUIREMENTS

Time Limit to Complete the Degree. The time limit for completing the PhD degree is seven years from the date of matriculation in the department, not counting official leaves of absence. Students unable to complete the PhD program within the time limit must petition the Graduate School for an extension of time to complete the degree provided there exists adequate reason to justify such a request. Students must provide a detailed description of work completed to date as well as a timeline for completion of the dissertation/degree. Normally, extensions are approved for a maximum of one year. A total of more than two years will not be approved. Requests for extensions should be made at least two weeks prior to the start of the semester. ***Graduate Student Petition Forms*** are located on the web at http://grad.buffalo.edu/Academics/Forms-for-Students.html. Be sure to indicate the dates of the extension, the reason for the request, and the intended date of degree completion. The Graduate School will not approve an extension for 'personal reasons,' you must be specific and present strong justification for your request.

CHECKLIST FOR PhD DEGREE CONFERRAL

- 72 graduate credit hours are completed with an overall 'B' (3.0) average (a minimum of 60 credit hours of graduate course work including public health course requirement plus 12 credit hours of dissertation credit)
- Continuous registration from the date of matriculation (unless on an approved leave of absence)
- If beyond the seven-year time limit for completion of degree, an approved petition for extension of time to complete the degree is on file in the Graduate School
- An approved ***Application to Candidacy*** is on file in the Graduate School with all necessary attachments, including original transcripts
- Satisfactory completion of Qualifying Exams
- Satisfactorily completion of the public health course requirement
- Successful completion and defense of the dissertation
- Satisfactory attendance of the department seminar
- ***M-Form*** and electronic submission of the dissertation to the Graduate School within the established deadlines
- ***Survey of Earned Doctorates*** completed through the Graduate School *site*
- Successful completion of the Responsible Conduct of Research (RCR) Training Requirement (grade printout required to be attached to ATC)
- One bound copy of the dissertation delivered to the Department and to each member of the student's committee

BIOINFORMATICS & BIOSTATISTICS MASTER OF SCIENCE DEGREE (MS)

The Program in Bioinformatics & Biostatistics was previously housed in the University at Buffalo (UB), Roswell Park Cancer Institute (RPCI) Graduate Division. Beginning June 1, 2015, this program moved to the Department of Biostatics at UB. The roots of the program derive from the Biometry program that was discontinued in 1998. In August 4, 2009 the program was revived and

updated in order to better align it with current standards. The program now has a strong emphasis in bioinformatics. The program is a joint collaboration between the Department of Biostatistics with contributions from several other departments on campus. These affiliations, in addition to collaborations with researchers in the Center of Excellence in Bioinformatics provide a rich environment for the education and training of bioinformaticians and biostatisticians. In addition to their classroom studies, the program's students have opportunities to gain practical training through mentored, hands-on data analyses in the context of exciting biological, medical and health science research projects.

Coursework leading to a Master of Science (MS) degree in Bioinformatics & Biostatistics typically takes two years to complete. A minimum of 36 credit hours with cumulative average GPA 3.0 or better is required. In addition, practical data analysis experience is required at a level commensurate with master's degree coursework. A practical training project (STA 601 1-6 credits) is required. The student must prepare a paper for his/her committee and pass a final oral exam, which is a presentation and defense of their practical training project report.

Core Course Requirements

STA 502	Introduction to Statistical Inference (3)*
STA 509	Statistical Genetics (3)
STA 511	Advanced Statistical Computing (3)
STA 525	Statistics for Bioinformatics (3)
STA 545	Data Mining I (3)
STA 546	Data Mining II (3)
STA 782	Department Seminar (0)

Students are ***also required*** to have the following public health course:
CHB 550 Public Health and Population Well Being (3) ***taught in the fall***

*Students interested in the MA program should take STA 521. Completion or demonstrated knowledge of the material in STA 511 (Advanced Statistical Computing) is a prerequisite for STA 521.

- ***All full time students are required to attend the weekly departmental seminar (which includes those student who are certified full time and who are registered for less than 12 credits)***

To be more specific:

1) Attendance for all full-time students is **mandatory** at our 4pm Thursday seminar. Seminars scheduled outside that timeslot are optional. However, all students are strongly urged to attend.
2) An attendance sheet will be administered at the beginning of each seminar that you will be required to sign in order to register your attendance.

3) You are expected to attend 80% of the seminars each semester. Failure to do so may delay your graduation date until seminar attendance is deemed adequate. TAs who fail to attend the seminar may lose their assistantships.

Elective Requirements

Students must take at least 12 hours of masters electives (ME). The following is a list of courses offered by the program that can be used to satisfy this requirement:

STA 503	Introduction to Applied Statistics I (previously Regression Analysis) (3)
STA 504	Introduction to Applied Statistics II (previously Analysis of Variance) (3)
STA 515	Distribution-Free Inference (3)
STA 517	Categorical Data Analysis (3)
STA 521	Introduction to Theoretical Statistics I
STA 522	Introduction to Theoretical Statistics II
STA 526	Design and Analysis of Clinical Experiments (3)
STA 531	Theory and Methods of Sample Surveys (3)
STA 536	Statistical Design and Analysis (3)
STA 537	Sequential Analysis (3)
STA 551	Stochastic Processes (3)
STA 561	Longitudinal Data Analysis and Time Series Analysis (3)
STA 567	Bayesian Analysis (3)
STA 571	Special Topics in Statistics (3)
STA 575	Survival Analysis (3)
STA 581	Multivariate Data Analysis (3)
STA 609	Advanced Statistical Genetics (3)
BCH/BI0 519	Introduction to Bioinformatics (3)
CSE 503	Computer Science for Non Majors I (3)
CSE 536	Computational Biology (3)
EEH 604	Fundamentals of Genetic Epidemiology

Practical Training Requirement/Data Analysis Project (STA 601 Project Guidance: 1-6 credits)

Bioinformatics & Biostatistics Masters students are required to have at least one semester of practical training that involves the application of methods from their master's degree coursework to real data. Students will register for STA 601 Project Guidance (1-6 credits with a grade of S or U) with their major professor. This requirement can be satisfied by working under a faculty member in a consulting or collaborative research setting, by participating in an internship that has been approved by the student's advisor/committee. The student must submit a detailed written report of a data analysis project to their supervisory committee for evaluation at the final oral exam. The presentation of this report must be given to the committee in the form of a

seminar announced to all faculty and students of the School of Public Health and Health Professions.

Supervisory Committee

When all core courses have been successfully completed, the student selects a committee which consists of a major professor who is a member (or associate member) of the UB Graduate Faculty whose primary geographic appointment is in the Department of Biostatistics at UB or Department of Biostatistics and Bioinformatics at Roswell Park Comprehensive Cancer Center (RPCCC) and two additional committee members who are also members (or associate members) of the UB Graduate Faculty. At least one of all committee members should have primary appointments from Department of Biostatistics at UB. The committee needs to be approved by Director of Graduate Studies.

Thesis Option

A student who wishes to complete the master's thesis option may substitute up to six research hours (STA 700 with a grade of S or U) for two master's elective courses **or** for the practical training requirement, provided they complete at least 12 credits of STA master's elective courses. A Master's thesis with general content pre-approved by the student's advisory committee is required. To replace practical training hours the thesis must include an in-depth analysis of data from the health or biological sciences. An oral presentation of the thesis must be given to the supervisory committee at a seminar announced to all faculty and students of the Program of Bioinformatics & Biostatistics. Two bound copies of the thesis must be submitted to the Graduate School and one bound copy to the Program. Copies should be bound in boards covered with blank imitation leather, with the title and author's name embossed, not printed, on the front in gold and the author's last name, degree and year of conferral of the degree on the spine (also in gold). See the section entitled Dissertation and Final Defense for Guidelines for Thesis Preparation.

ADMINISTRATIVE REQUIREMENTS

These can be found at http://grad.buffalo.edu/Academics/Policies-Procedures.html (see University policy)

Time Limit to Complete the Degree. The time limit for obtaining the master's degree is four years from the date of matriculation in the department, not counting official leaves of absence. Students unable to complete the master's program within the time limit must petition the Graduate School for an extension of time to complete the degree. Students must provide a detailed description of work completed to date as well as a timeline for completion of the thesis/degree. Normally, extensions are approved for a maximum of one year. A total of more than two years will not be approved. Requests for extensions should be made at least two weeks

prior to the start of the semester. ***Graduate Student Petition Forms*** are available at http://grad.buffalo.edu/Academics/Forms-for-Students.html. Be sure to indicate the dates of the extension, the reason for the request, and the intended date of degree completion. The Graduate School will not approve an extension for 'personal reasons'. You must be specific and present strong justification for your request.

Graduation: Students will apply for graduation through their HUB student center. The degree dates are either February 1st, June 1st, or August 31st. Please keep in mind deadlines for applying listed at the Graduate School website http://grad.buffalo.edu/succeed/graduate/requirements.html.

M-Form. The ***M-form*** (Multi-Purpose) is prepared by the Academic Program Coordinator and given to the student after all degree requirements have been completed for those students who are doing a thesis ONLY. Students who are doing a project do not need this form sent to the graduate school. You must provide the title and abstract of your project or thesis to the Academic Program Coordinator. This form must be signed by the major professor, committee members, and the Director of Graduate Studies to certify that the student has satisfactorily completed ALL academic requirements for the degree. A copy of the ***M-Form*** is placed in the student's file. The original must be received at the Graduate School by the following deadlines:

Friday before spring classes for a February 1 degree conferral
Last day of spring exams for a June 1 degree conferral
Friday before fall classes for a n August 31st degree conferral

CHECKLIST FOR AN MS DEGREE CONFERRAL:

- 36 graduate credit hours (including core courses specified above) are completed with at least an overall 'B' (3.0) average
- Satisfactory completion of the public health course requirement
- Satisfactory attendance at the department seminar
- Satisfactory completion of STA 601 Practical Training
- Satisfactory completion of oral exam (Data Analysis Project or Thesis option)
- Continuous registration from the date of matriculation (unless on an approved leave of absence)

- If beyond the four-year time limit for completion of degree, an approved petition for extension of time to complete the degree is on file in the Graduate School

- *Apply for graduation through student HUB by deadlines outlined by the Graduate School*. If student chooses thesis option, the M form will be used

MASTER OF PUBLIC HEALTH (MPH) Biostatistics Concentration

The MPH degree requires 47 credit hours (unless a student is waived from required course work). Students must maintain a minimum overall GPA of at least 3.0 and a minimum grade of 'B' (3.0) in all required courses. Note: B- (2.67) is below the minimum grade for required courses.
Courses and Competencies

- Core required MPH courses
- Concentration courses
- Field training
- Integrative project
- Seminar requirement

Core Required MPH Courses (20 credits)

The required core courses taken by all MPH students are as follows. They address competencies established by the Association of Schools of Public Health (ASPH) for the five core areas of the MPH degree: biostatistics, environmental health sciences, epidemiology, health policy and management, and social and behavioral sciences.

- CHB 501 Study of Health Behaviors (3 credits)
- CHB 507 Public Health Professionalism and Teamwork (1)
- EEH 501 Principles of Epidemiology (4 credits) *
- EEH 530 Introduction to Health Care Organization (3 credits)
- EEH 520 Biological Basis of Public Health (3)
- EEH 550 Environmental Health (3)
- EEH 590 Public Health Seminar: Leadership, Collaboration and Negotiation in Public Health: students take (3 credits total)
    - Students take CHB 590 (1 credit) spring Semester
    - Students take EEH 590 (2 credits) for fall semester

Concentration Courses Required (9 credits)

- STA 502 Intro to Statistical Inference (3 credits) *

- STA 503 Introduction to Applied Statistics I ((3 credits) *
- STA 504 Introduction to Applied Statistics II (3 credits)

***NOTE: EEH 501, STA 502 and STA 503 must be taken in the first semester of a student's program**

Also required

Interprofessional Forum

Interprofessional collaborative practice, or the ability to work effectively on teams with professionals . The forum is offered once per semester. It is a 2.5 hour requirement to attend one forum. (http://sphhp.buffalo.edu/home/about-us/interprofessional-education.html)

Students must take four of the following elective courses (12 credits): STA 527, 528 or 529 are not allowable as an elective.

- STA 506 Intro to Statistical Computing (3)
- STA 509 Statistical Genetics (3)
- STA 511 Advanced Statistical Computing (3)
- STA 515 Distribution-Free Inference (3)
- STA 517 Categorical Data Analysis
- STA 521 Introduction to Theoretical Stats (3)
- STA 522 Introduction to Theoretical Statistics II (3)
- STA 525 Statistics for Bioinformatics
- STA 526 Design and Analysis of Clinical Experiments
- STA 531 Theory and Methods of Sample Surveys
- STA 536 Statistical Design and Analysis (3) STA 537 Sequential Analysis (3)
- STA 545 Data Mining I (3)
- STA 546 Data Mining II (3)
- STA 551 Stochastic Processes (3)
- STA 561 Longitudinal Data Analysis and Time Series Analysis (3)
- STA 567 Bayesian Statistics (3)

- STA 571 Special Topics in Statistics (3)
- STA 575 Survival Analysis (3)
- STA 581 Multivariate Data Analysis (3)

Field Training (STA 544, 3 credits)

The purpose of the supervised field training experiences is to allow students to synthesize the knowledge and skills developed during the academic portion of their program in a practical setting. The field training is both a learning experience for the student and contributes to the work undertaken by the field training site. The expectation is that the field training will provide learning opportunities unavailable in a classroom setting. More information can be found at: http://sphhp.buffalo.edu/mph/program/field_training_guidelines.php.

In addition to a field training experience at a site of their choosing, students complete interprofessional education (IPE) and collaborative practice course content in preparation for working at their site.

- MPH students register for course STA 544 (grading is either S or U) associated, followed by their advisor's initials.
- After students register for field training, they complete interprofessional education (IPE) modules prior to beginning their field training experience. IPE modules prepare students to work collaboratively with professionals from public health, as well as other healthcare or related disciplines at their site. Students describe interprofessional interactions and activities in their field training report.
    - In UB Learns, complete the *Foundations of Interprofessional Collaborative Practice Online Module Series* (approximately 6 hours).
    - Complete assessments following each module in the series.
- Students also participate in a one-day interprofessional forum after completing the modules. Forums are offered multiple times each year, and provide opportunities to work on interprofessional teams with students in medicine, nursing, pharmacy, dentistry, rehabilitation science, exercise and nutrition, social work, management and law.
- Students who waive field training cannot waive the interprofessional collaborative practice requirements. Students waiving the field training experience register for 1 credit of their department's 544 course (CHB, EEH or STA), complete the *Foundations of Interprofessional Collaborative Practice Online Module Series,* and participate in an interprofessional forum.
- Students completing a field training experience submit a mandatory field training report.
- In addition to the mandatory field training report, students are required to prepare and submit a presentation of their field training experience using the outline detailed below.

The presentation should consist of between 15 to 20 slides and include speaker notes for each slide.

MPH Field Training PowerPoint Presentation Content

- Overview of field training project, goals, objectives and activities
- Coursework and/or professional experience utilized during field training
- Description of challenges/obstacles encountered and strategies used to overcome them
- Description of the benefits to you and the agency
- Examples of at least two work products (e.g., flyer, brochure, poster, spreadsheet, survey tool, questionnaire, slide set, etc.) you created during your field training experience. You also must identify which competencies were addressed by each product. You are required to address a total of five competencies (two concentration specific - three foundational) during your field training experience. It is important that each product clearly delineates which competencies were addressed and how the product demonstrates the competency.
- Summary of outcomes
- Conclusions

Integrative Project (STA 630, 3 credits/graded S or U)

In addition to the required and elective courses, all MPH students must complete an integrative project.

The purpose of the integrative project is for Master of Public Health students to integrate core public health knowledge and skills. It takes the form of a paper prepared during the last semester of the students' program. Registration ordinarily is only during the last semester of the student's MPH program. Students can begin on their project before their last semester in the program, for example, during their field training if the project is an extension of something first encountered during the field training.

Our department will require submission of an abstract describing what the student proposes to do for his or her integrative project. More information can be found at: http://sphhp.buffalo.edu/mph/program/project_instructions.php

Project Committee

When all core courses have been successfully completed, the student selects a committee which consists of a major professor who is a member (or associate member) of the UB Graduate Faculty whose primary geographic appointment is in the Department of Biostatistics at UB or Department of Biostatistics and Bioinformatics at Roswell Park Comprehensive Cancer Center (RPCCC) and two additional committee members who are also members (or associate

members) of the UB Graduate Faculty. At least one of all committee members should have primary appointments from Department of Biostatistics at UB. The committee needs to be approved by Director of Graduate Studies.

ADMINISTRATIVE REQUIREMENTS

These can be found at www. grad.buffalo.edu/policies (see University policy)

Time Limit to Complete the Degree. The time limit for obtaining the master's degree is four years from the date of matriculation in the department, not counting official leaves of absence. Students unable to complete the master's program within the time limit must petition the Graduate School for an extension of time to complete the degree. Students must provide a detailed description of work completed to date as well as a timeline for completion of the thesis/degree. Normally, extensions are approved for a maximum of one year. A total of more than two years will not be approved. Requests for extensions should be made at least two weeks prior to the start of the semester. ***Graduate Student Petition Forms*** are available at http://grad.buffalo.edu/Academics/Forms-for-Students.html. Be sure to indicate the dates of the extension, the reason for the request, and the intended date of degree completion. The Graduate School will not approve an extension for 'personal reasons'. You must be specific and present strong justification for your request.

Graduation: Students will apply for graduation through their HUB student center. The degree dates are either February 1st, June 1st, or August 31st. Please keep in mind deadlines for applying listed at the Graduate School website http://grad.buffalo.edu/succeed/graduate/requirements.html
https://registrar.buffalo.edu/hub/applyForGraduation.php

CHECKLIST FOR MPH DEGREE CONFERRAL

- 47 to 48 graduate credit hours are satisfactorily completed with a 'B' (3.0) average or better
- Apply for graduation though student HUB by deadlines outlined by the Graduate School
- A minimum grade of B (3.0) in all required course work
- Completed three semesters of seminar attendance (The MPH seminar, not the Biostatistics seminar)

- Complete the Interprofessional Collaborative Practice Online Module Series
- Complete the Interprofessional forum
- Continuous registration from the date of matriculation (unless on an approved leave of absence)
- If beyond the four-year time limit for completion of degree, an approved ***Graduate Student Petition Form*** for extension of time to complete the degree is on file in the Graduate School
- Review unofficial transcript and address any "I" or "J" grades
- Successful completion and presentation of the integrative project
- ***Abstract of Research*** and copy of the integrative project submitted to the Department with slides

One Year Accelerated MPH Degree

For highly qualified applicants, we offer an accelerated 12-month course of study that culminates with an MPH degree with a biostatistics concentration.

Applicants must have a terminal degree (MD, PhD, JD, etc.) or significant post-baccalaureate public health work experience to be considered for the accelerated program.

Our rigorous program is geared towards those applicants who can devote 12 consecutive months to intensive public health course work and related field placement and integrative project requirements.

The accelerated MPH requires a minimum of 47 credits completed over 12 consecutive months. Up to 6 credits may be waived and up to 9 credits may be transferred based on previously taken graduate coursework. Regardless of any waivers/substitutions, a minimum of 43 credits must be completed.

Fall Courses

Required courses (all courses are 3 credits unless otherwise indicated).

- CHB 501 Study of Health Behavior (3 credits)
- EEH 501 Principles of Epidemiology (4 credits)
- EEH 530 Introduction to Health Care Organization
- EEH 590 Leadership, Collaboration and Negotiation in Public Health (1 credit, students take 3 semesters, and should register for at least 1 fall and 1 spring)
- STA 502 Introduction to Statistical Inference (3 credits)
- (3 credits)
- Elective course/s*

**A total of four elective courses, which can be taken in fall, spring or summer, are required to graduate.*

Spring Courses

Required courses (all courses are 3 credit hours unless otherwise indicated)

- EEH 520 Biological Basis of Public Health
- EEH 550 Environmental Health
- EEH 590 Leadership, Collaboration and Negotiation in Public Health (1 credit, students take 3 semesters, and should register for at least 1 fall and 1 spring)
- STA 504 Introduction to Applied Statistics II (formerly Analysis of Variance)
- Elective course/s*

**A total of four elective courses, which can be taken in fall, spring or summer, are required to graduate.*

Courses

Field Training

Through the supervised field training experience, you will apply your skills and knowledge learned in the classroom and engage in the practice of public health. This hands-on experience will take place at a public health site of your choosing.

- STA 544 MPH Field Training (3 credits, grade of S or U)

Integrative Project

With your integrative project, you will incorporate what you have learned from the program coursework and your field training into a paper that addresses a specific public health issue.

- STA 630 MPH Integrative Project (3 credits, graded S or U)

Combined Degrees

Master of Public Health and Professional Degree MPH/MD Program

Through this five-year program, you will earn an MPH degree in biostatistics and a Doctor of Medicine (MD) degree.

This collaborative program prepares you to incorporate a public health approach with your medical practice or research—providing care for individuals as well as communities.

Students enrolled in all combined degree programs accept the MSW/MPH and JD/MPH must maintain continuous registration in the School of Public Health and Health Professions. If you are taking courses in the non-MPH program during a semester, you can request a leave of absence from the MPH program.

Curriculum

Our MPH curriculum will provide a comprehensive understanding of public health philosophy, as well as the practical knowledge and skills needed to address current and emerging public health problems. You will complete 47 credits, including coursework, four credits of field training and three credits for an integrative project.

The MD curriculum provides a general medical professional education that permits you to learn the fundamental principles of medicine, to acquire skills of critical judgment based on education and experience and to develop an ability to use principles and skills wisely in solving problems of health and disease.

Each degree will be conferred separately upon completion of program requirements.

Course of Study

First and Second Year

- Follow the School of Medicine curriculum schedule

Third Year

- The third year is devoted to the MPH program. For both the fall and spring semesters, refer to the biostatistics concentration of the MPH curriculum

Fourth Year

- Follow the School of Medicine curriculum schedule

Fifth Year -- Fall

- Follow the School of Medicine curriculum schedule

Fifth Year -- Spring

- STA 544 Field Training
- STA 630 Integrative Project
- Any remaining concentration area courses in the MPH program

ADVANCED (GRADUATE) CERTIFICATE IN APPLIED BIOSTATISTICS

The Department of Biostatistics at SUNY at Buffalo is offering an advanced (graduate) certificate in "Applied Biostatistics". This certificate program will provide an intensive training on biostatistical methodology and data analysis skills. Upon completion, students will be equipped with statistical knowledge and programming techniques needed for analyzing data from a variety of sources such as clinical trials, observational studies and laboratory studies. This certificate program is targeted towards people who have already obtained their terminal degree, e.g. MD or PhD, and would like additional professional development outlets.

Curriculum

Coursework leading to an *Advanced Certificate in Applied Biostatistics* consists of one required course and four elective courses. A minimum overall cumulative GPA 3.0 will be required to earn this advanced certificate.

Required Core Course (3 credits)

STA 502: Introduction to Statistical Inference *(3 credits)*
Or equivalent course (e.g. STA 521 or STA 522)

Elective Courses (12 credits)

Choose any 4 courses from the following list (all the courses are 3 credits):

- STA 503 Introduction to Applied Statistics I (formerly Regression Analysis)

- STA 504 Introduction to Applied Statistics II (formerly Analysis of Variance)
- STA 509 Statistical Genetics
- STA 511 Advanced Statistical Computing (formerly Math Analysis for Statisticians)
- STA 515 Distribution-Free Inference
- STA 517 Categorical Data Analysis
- STA 521 Introduction to Theoretical Statistics I
- STA 522 Introduction to Theoretical Statistics II
- STA 525 Statistics for Bioinformatics
- STA 526 Design and Analysis of Clinical Experiments
- STA 528 Statistical Analysis II
- STA 529 Statistical Analysis III
- STA 531 Theory and Methods of Sample Surveys
- STA 537 Sequential Analysis
- STA 545 Data Mining I
- STA 546 Data Mining II
- STA 551 Stochastic Processes
- STA 561 Longitudinal Data Analysis and Time Series Analysis
- STA 567 Bayesian Statistics
- STA 571 Special Topics in Statistics
- STA 575 Survival Analysis
- STA 581 Multivariate Data Analysis

Advanced Certificate Conferral Requirements

Depending on the particular Advanced Certificate program in question and its admission/eligibility requirements, a graduate student may be authorized to pursue that advanced certificate program on a "stand-alone" basis or in conjunction with an existing graduate level degree program. When a graduate student who is pursuing an Advanced Certificate program has completed or nearly completed the requirements for the Advanced Certificate in question (i.e., is currently enrolled in the last needed requisites), the student is responsible for filing the appropriate Advanced Certificate Program of Study Approval form with his/her department to enable timely review of the student's record. Each Advanced Certificate Program of Study Approval form must be approved by the faculty member in charge of that certificate program and must be forwarded to the Graduate School by the relevant application to candidacy deadline as published on the Graduate School website.

ADVANCED (GRADUATE) CERTIFICATE IN BIOSTATISTICAL INFORMATICS

The Department of Biostatistics at SUNY at Buffalo is offering an advanced (graduate) certificate in Biostatistical Informatics. Develop your knowledge and skills in biostatistical informatics, the study of high-dimensional data in biomedical and public health research. Biostatistical informatics is the study of high-dimensional data in biomedical and public health research. This certificate program will enhance a student's ability to properly evaluate and utilize a wide variety of advanced statistical methods. Students will receive in-depth training in the statistical foundations and methods of analysis of genetic data, including genetic mapping, quantitative genetic analysis, design and analysis of medical genetic studies and data mining.

Biostatistics majors pursuing this certificate will benefit from specialized training that will more readily qualify them for employment and/or conducting research in the certificate subject areas.

Scientists working in areas outside of Biostatistics will obtain a level of quantitative literacy that will greatly improve their abilities to properly identify, evaluate, and utilize statistical methods that are relevant to their particular subject matter.

Requirements and Curriculum

The Advanced Graduate Certificate in Biostatistical Informatics requires 15 credits (five courses) with a minimum GPA of 3.0 in all courses.

Core Required Courses - 15 credits
All courses are 3 credit hours.

- STA 502 Introduction to Statistical Inference
- STA 509 Statistical Genetics
- STA 525 Statistics for Bioinformatics
- STA 545 Data Mining I
- STA 546 Data Mining II

Advanced Certificate Conferral Requirements
Depending on the particular Advanced Certificate program in question and its admission/eligibility requirements, a graduate student may be authorized to pursue that advanced certificate program on a "stand-alone" basis or in conjunction with an existing graduate level degree program. When a graduate student who is pursuing an Advanced Certificate program has completed or nearly completed the requirements for the Advanced Certificate in question (i.e., is currently enrolled in the last needed requisites), the student is responsible for filing the appropriate Advanced Certificate Program of Study Approval form with his/her department to enable timely review of the student's record. Each Advanced Certificate Program

of Study Approval form must be approved by the faculty member in charge of that certificate program and must be forwarded to the Graduate School by the relevant application to candidacy deadline as published on the Graduate School website.

EXAMPLE PROGRAMS OF STUDY

Master of Arts Degree

Note that the sample program of study for the Master of Arts Degree is meant for students who are receiving partial and/or full tuition stipends and are required to take 9 credit hours per semester. Those students who are not on stipend are required to take 12 credit hours per semester in order to be considered full-time and may complete the degree program sooner.

MASTER'S DEGREE IN BIOSTATISTICS (MINIMUM 30 CREDITS)		
Year 1: Spring Semester	**Year 1: Summer**	
STA 503 Introduction to Applied Statistics I (3) STA 511 Advanced Statistical Computing (3) (highly suggested to all MA students) STA 521 Introduction to Theoretical Statistics I (3) CHB 550 Public Health and Population Well-Being (3) STA 782 Departmental Seminar (0)	STA 504 Introduction to Applied Statistics II (3) STA 522 Introduction to Theoretical Statistics II (3) Master's Elective (3) Master's Elective (3) STA 782 Departmental Seminar (0)	Masters Exam
Year 2: Fall Semester	**Year 2: Spring Semester**	**Year 2: Summer**
Masters Elective (3) Practical Training (PT) STA 782 Departmental Seminar (0)	Masters Elective (3) Practical Training Report and Seminar STA 782 Departmental Seminar (0)	

PHD DEGREE IN BIOSTATISTICS FOR THOSE WHO ALREADY HAVE MA IN STATS/BIOSTATISTICS		
Year 1: Fall Semester	**Year 1: Spring Semester**	**Year 1: Summer**
STA 621 Theory of Statistical Inference (3) STA 641 Theory of Linear Models (3) CHB 550 Public Health and Population Well-Being (3)*** PhD Elective (3) STA 782 Departmental Seminar (0)	STA 622 Limit Theory (3) STA 642 Topics in Advanced Modeling (3) STA PhD elective (3) STA PhD elective (3) STA 782 Departmental Seminar (0)	PhD Qualifying Exam
Year 2: Fall Semester	**Year 2: Spring Semester**	**Year 2: Summer**
STA 781 Reading & Research STA PhD Elective (3) STA PhD Elective (3) **RPN 541 or ** PHI640 or CITI course online STA 782 Departmental Seminar (0)	STA 781 Reading & Research STA PhD Elective (3) STA PhD Elective (3) STA 782 Departmental Seminar (0)	
Year 3: Fall Semester	**Year 3: Spring Semester**	**Year 3: Summer**
Part II Exam (Thesis Proposal) STA 782 Departmental Seminar (0)*	STA 700 Thesis Guidance STA 782 Departmental Seminar (0)*	
Year 4: Fall Semester	**Year 4: Spring Semester**	**Year 4: Summer**
STA 700 Thesis Guidance	STA 700 Thesis Guidance	
Year 5		
STA 700 Thesis Guidance Dissertation Defense		

* Full time students are required to attend 80% of seminars (includes those who filed their ATC and have full time status from the graduate school)

**PhD students must fulfill the ethics requirement by the end of the third year. Those who opt for the online course must show proof of satisfactory completion to the Graduate School.

*** For those students who did not graduate with a master's degree from an accredited school of public health and have not completed these requirements.

Master of Science Degree Bioinformatics and Biostatistics

Note that the sample program of study for the Master of Sciences Degree is based on those students required to take 12 credit hours per semester in order to be considered full-time. If you have an assistantship, you only are required to have 9 credits per semester to be considered full-time.

MASTER'S DEGREE IN BIOINFORMATICS AND BIOSTATISTICS (36 CREDITS)		
Year 1: Fall Semester	**Year 1: Spring Semester**	
STA 502 Introduction to Statistical Inference (3) STA 511 Advanced Statistical Computing (3) CHB 550 Public Health and Population Well-Being (3) Masters Elective (3) STA 782 Department Seminar	STA 525 Statistics for Bioinformatics (3) Masters Elective (3) Masters Elective (3) Masters Elective (3) STA 782 Department Seminar	
Year 2: Fall Semester	**Year 2: Spring Semester**	**Year 2: Summer**
STA 509 Statistical Genetics (3) STA 545 Data Mining I (3) Public Health Course CHB 550 (3) or Masters Elective Master's Project Guidance STA 601 (3) or Thesis Option STA 700 (6) STA 782 Department Seminar	STA 546 Data Mining II (3) Master's Project Guidance STA 601 (3) or Thesis Option STA 700 (6) STA 782 Department Seminar	

EXAMPLE TWO YEAR MPH COURSE SEQUENCE BY CONCENTRATION AREA
BEGINNING FALL 2021

MPH Degree with Biostatistics Concentration 47 CREDITS		
Year 1: Fall Semester (13 cr)	**Year 1: Spring Semester (12 cr)**	**Year 1: Summer**
• EEH 501 Epidemiology Principles (4)* • STA 502 Intro to Stat Inference (3) * • STA 503 Introduction to Applied Statistics I (3) * *One biostatistics elective (3)*	• EEH 550 Environmental Health (3) • *One biostatistics elective (3)* • STA 504 Introduction to Applied Statistics II (3) EEH 520 Biological Basis of Public Health (3)	
Year 2: Fall Semester (18 cr)	**Year 2: Spring Semester (8 cr)**	**Year 2: Summer**
• CHB 501 Study of Health Behaviors (3) • EEH 530 Introduction to Health Care Organization (3) • *One biostatistics elective (3)* • STA 544 Field Training (3) • EEH 590 Leadership, Collaboration and Negotiation in Public Health (2)	• STA 630 Culminating Project (3) • *One biostatistics elective (3)* • CHB 507 Public Health Interprofessional Teamwork and Practice (2)	

*must be taken first semester
**CHB 507 (Interprofessional Collaborative Practice Online Module Series) needs to be completed before field training)
***STA 511 provides the background in special topics in mathematics required to succeed in the biostatistics electives :STA 511 is a recommended elective for students who have not had an advanced calculus and/or matrix algebra and/or computing skills.

EXAMPLE *ONE* YEAR MPH ACCELERATED COURSE SEQUENCE BY CONCENTRATION AREA
BEGINNING FALL 2019

MPH WITH BIOSTATISTICS CONCENTRATION (MINIMUM 45 CREDITS)	
Year 1: Fall Semester (22)	**Year 1: Spring Semester (22)**
CHB 501 Study of Health Behavior (3) EEH 501 Epidemiology Principles (4) EEH 530 Introduction to Health Care Organization (3) STA 502 Intro to Stat Inference (3) STA 503 Introduction to Applied Statistics I (formerly Regression Analysis) (3) *One biostatistics elective (3)* EEH 590 Leadership, Collaboration and Negotiation in Public Health (2) CHB 507 Public Health Professionalism and Teamwork (1 credit)	EEH 531 Administrative Theory and Practice (3) EEH 520 Biological Basis of Public Health (3) EEH 550 Environmental Health (3) STA 504 Introduction to Applied Statistics II (formerly Analysis-of-Variance) (3) *One biostatistics elective (3)* *One biostatistics elective (3)* Interprofessional Forum *(2.5 hour form)* Complete Online modules CHB 590 Seminar Contemporary Issues in Public Health (1)
Summer Session	
STA 544 Field Training (3) STA 630 Integrative Project (3)	

Curricular Practical Training

Curricular Practical training (CPT) is a type of off-campus employment authorization that enables international students in F-1 visa status to take part in an internship, Co-Op, field placement, practicum, or work/service experience that is integral to the curriculum of their degree program. International students who are seeking practical training experience by way of an assistantship outside the University at Buffalo need to apply for Curricular Practical Training. Students will **first** obtain permission to apply for CPT then consult with International Student Services (ISSS) at 210 Talbert Hall, North Campus (716) 645-2258 (http://www.buffalo.edu/international-student-and-scholar-services.html) for requirements to processes the CPT paperwork. Please allow sufficient time for processing. Students MUST have permission from the Director of Graduate Studies to apply for CPT. Please note the following requirements for department approval of CPT:

1. Students interested in CPT should make every effort to apply for CPT over the summer months versus during the semester (if possible)
2. Students needing full time CPT must not exceed one semester
3. Students needing part time CPT must not exceed two semesters
4. The CPT must coordinate with STA 600 (1.0 credits) with a major professor for guidance in the student's work to whom students must provide written reports throughout the semester
5. Students must be in good academic standing, have a GPA of at least 3.0 and have passed the comprehensive exams (or qualifying exams, as applicable to that student's academic program)
6. Students must obtain permission from the Director of Graduate Studies **before** approaching a faculty member to sign a letter for CPT

Any questions, please contact the Director of Graduate Studies or the Academic Program Coordinator.

COURSE DESCRIPTIONS (courses are 3.0 credits unless otherwise noted)

***** Indicates a course that is not available for credit toward a MA or PhD degree in biostatistics. Unless otherwise specified, courses are 3 credit courses.

CHB 501 STUDY OF HEALTH BEHAVIOR
Designed to provide you with a graduate-level overview of the role of the social and behavioral sciences in understanding and addressing public health problems. Three general topics are

covered. First, we examine how psychological, social, and environmental factors influence people's health and wellbeing. Second, we explore factors that influence health behavior, including individual, social, and environmental/community influences. Third, we explore how understanding behavior and social/environmental influences on health informs public health approaches to improving health and preventing disease. The course prepares public health students to satisfy MPH competencies in social and behavioral sciences.

CHB 550 PUBLIC HEALTH POPULATION WELL-BEING

The course will provide students with an understanding of and appreciation for population approaches to improving the health of our nation and the world, as well as knowledge of various career paths in public health. Course content includes: public health perspectives on health, wellness, illness, and population well-being; key influences on the health and well being of individuals and populations; assessing public health problems from a population health perspective; using the five core components of public health to address health problems; effectively utilizing health information to address public health issues; and career paths in public health and the training/expertise required to pursue them. Students will engage in critical assessment of historical and current public health events, and creative application of their foundational knowledge to new public health problems. The course is particularly applicable to students preparing to pursue a health-related career and to students in health professions programs desiring a knowledge of public health approaches.

EEH 501 EPIDEMIOLOGY PRINCIPLES (4 credits)

Introduction to the basic principles, methods and uses of epidemiology. This course is a master's/doctoral level course designed to introduce epidemiology, its methods and its role in public health. A major portion of the course will be devoted to an overview of fundamental epidemiologic methods used in public health research and practice. The student will be familiarized with basic measures used in describing disease frequency in populations. Descriptive and analytic approaches to the study of disease will be explored, and a perspective on the role of epidemiologic methods in health services planning and evaluation will be provided. Problem solving exercises will be used to provide students with an opportunity to tabulate data and apply subject matter developed during lectures and in reading assignments. At the end of the course students should have a general understanding of the uses and limitations of epidemiologic inquiry. This understanding should provide the basis for applying epidemiologic concepts in work-related settings and in other courses in the public health curriculum.

EEH 520 BIOLOGICAL BASIS FOR PUBLIC HEALTH

Intended for students with little or no background in the biological sciences and health professions. The course provides a broad overview of public health topics related to human health and disease focusing on disease etiology with particular emphasis on parasitic and microbial infections plus a review of the anatomy, physiology, and pathology of selected major organ systems and associated diseases of public health importance.**

EEH 530 INTROUDCUTION TO HEALTH CARE ORGANIZATION
Introduces students to the historical development, structure, operation, and current and future directions of the major components of the American health care delivery system. It examines the ways in which health care services are organized and delivered, the influences that impact health care public policy decisions, factors that determine priorities in financing health care services and the relationship of health care costs to measurable benefits. The course enables students to assess the role of organized efforts to influence health policy formulation, and the contributions of medical technology, research findings, and societal values to the evolving U.S. health care delivery system. Class time is also devoted to exploring emerging policy, ethical and legal dilemmas resulting from medical and technological advances.**

EEH 531 ADMINISTRATIVE THEORY AND PRACTICE
Introduces students to the historical development, structure, operation, and current and future directions of the major components of the American health care delivery system. It examines the ways in which health care services are organized and delivered, the influences that impact health care public policy decisions, factors that determine priorities in financing health care services and the relationship of health care costs to measurable benefits. The course enables students to assess the role of organized efforts to influence health policy formulation, and the contributions of medical technology, research findings, and societal values to the evolving U.S. health care delivery system. Class time is also devoted to exploring emerging policy, ethical and legal dilemmas resulting from medical and technological advances.**

EEH 550 ENVIRONMENTAL HEALTH
Introductory course that explores the role of environmental factors in health with an emphasis on characterization, assessment, and control of environmental hazards. Topics include application of toxicologic and epidemiologic methods in assessing risk and setting exposure limits; the nature of and control of hazards associated with food, water, air, solid and liquid waste, occupation, and radiation; risk communication and management, environmental justice; and environmental laws. The course concludes by examining the impact of human activity, such as energy use and pollution, on the environment and how human-induced environmental change, in turn, impacts public health and that of the planet as a whole.**

EEH 590 CONTEMPORARY ISSUES IN PUBLIC HEALTH (Beginning Fall 2019 - 1 credit required for fall and spring semester)

CHB 590 CONTEMPORARY ISSUES IN PUBLIC HEALTH (1 credit spring semester)

STA 502 INTRODUCTION TO STATISTICAL INFERENCE
May not be used as credit for Master's students (MA) in biostatistics

Introduces basic principles of probability and distribution theory and statistical inference. Topics include axioms of probability theory, independence, conditional probability, random variables, discrete and continuous distributions, functions of random variables, moment generating functions, central limit theorem, point and interval estimation, maximum likelihood methods, tests of significance, and the Neyman-Pearson theory of testing hypotheses.**

STA 503 INTRODUCTION TO APPLIED STATISTICS I (FORMERLY REGRESSION ANALYSIS)

Advanced presentation of statistical methods for comparing populations and estimating and testing associations between variables. Topics include ANOVA models for 1, 2, and k-way classifications, multiple comparisons, least square means, random effects ANOVA, mixed models, chi-square test of homogeneity, Fisher's exact test, odds ratio, relative risk, repeated measures ANOVA, Kaplan-Meier estimation, and the Cox regression model. This course uses statistical software and emphasizes hands-on applications to data sets from the health-related sciences. LEC/LAB

Prerequisite: MTH 142 or second course in calculus or permission of instructor.

STA 504 INTROUCTION TO APPLIED STATISTICS II (FORMERLY ANALYSIS-OF-VARIANCE)
Advanced presentation of statistical methods for comparing populations and estimating and testing associations between variables. Topics include ANOVA models for 1, 2, and k-way classifications, multiple comparisons, least square means, random effects ANOVA, mixed models, chi-square test of homogeneity, Fisher's exact test, odds ratio, relative risk, repeated measures ANOVA, Kaplan-Meier estimation, and the Cox regression model. This course uses statistical software and emphasizes hands-on applications to data sets from the health-related sciences. *Prerequisite:* STA 503

STA 506 INTRODUCTION TO STATISTICAL COMPUTING
The purpose of this course is to familiarize students with PC-based statistical computing applications for public health. It is a comparison course for EEH 505: Introduction to Biostatistics. The course will develop basic skills in the use of a statistical package through classroom demonstrations and independent lab assignments that will complement the material covered in EEH 505. The course will emphasize data definition, verification, descriptive and inferential statistics and graphical presentation. The course should familiarize the students with the use of a statistical package and give them the skills needed for effective data management, data manipulation, and data analysis at a basic level.
NOTE: Concurrent registration in prerequisite is permissible. Prerequisite: STA 505 or STA 527 or permission of instructor

STA 509 STATISTICAL GENETICS
Statistical tools for analyzing experiments involving genomic data. Topics: Basic genetics and statistics, linkage analysis and map construction using genetic markers, association studies, Quantitative Trait Loci analysis with ANOVA, variance components analysis and marker regression (including multiple and partial regression), QTL mapping with interval mapping and composite interval mapping, LOD test, supervised and unsupervised methods for gene expression microarray data across multiple conditions. LEC
Prerequisites: STA 505 or STA 527 or STA 503

STA 511 ADVANCED STATISTICAL COMPUTING
This course provides the background in special topics in mathematics required to succeed in the biostatistics graduate programs and is required for students who have not had an advanced calculus and/or matrix algebra course. The basic mathematical concepts relevant to statistical studies will be discussed. Topics: convergence of sequences of sets, numbers, and functions, convergence of series, uniform convergence, power series, term by term integration and differentiation, matrix algebra, and other topics as time permits. LEC
Prerequisite: MTH 241. (Third semester calculus) or permission of instructor.

STA 515 DISTRIBUTION-FREE INFERENCE
Introduces alternate methods for designing and analyzing comparative studies that may be used when some or all of the assumptions underlying the usual parametric method are questionable. Topics: 1-, 2-, and k-sample location problems, randomized block and repeated measures designs, the independence problem, rank transformation tests, randomization tests, the 2-sample dispersion problem, and other topics as time permits. LEC
Prerequisite: Undergraduate Probability and Statistics course.

STA 517 CATEGORICAL DATA ANALYSIS
This course provides students with useful methods for analyzing categorical data. Topics: Cross-classification tables, tests for independence, log-linear models, Poisson regression, ordinal logistic regression, and multinomial regression for the logistic model. LEC
Prerequisite: STA 504 and STA 522. Concurrent registration in prerequisites is admissible.

STA 521 INTRODUCTION TO THEORETICAL STATISTICS I
Provides student with probability and distribution theory necessary for study of statistics. Topics: axioms of probability theory, independence, conditional probability, random variables, discrete and continuous probability distributions, functions of random variables, moment generating functions, Law of Large Numbers and Central Limit Theorem. LEC
Prerequisite: MTH 431 (Advanced calculus) or concurrent enrollment in STA 511

STA 522 INTRODUCTION TO THEORETICAL STATISTICS II
Introduces principles of statistical inference. Classical methods of estimation, tests of significance, and Neyman-Pearson Theory of testing hypotheses, maximum likelihood methods, and Bayesian statistics are introduced and developed. LEC
Prerequisite: STA 521.

STA 525 STATISTICS FOR BIOINFORMATICS
Since the completion of the human genome project, there is a burgeoning field of new applications for statistics involving high throughput experiments designed to gather large amounts of information on biological systems. This course is focused on discussing the wide array of approaches and technologies implemented to gather this information and the statistical issues involved from initial data processing steps to end stage research objectives. Specifically, time permitting, the technologies we will examine include two dimensional protein gel electrophoresis, protein mass spectrometry, and several flavors of microarray experiments. We will use the text "Bioinformatics and Computational Biology Solutions Using R and Bioconductor". Much of the work for the course will involve analyzing data sets from class and from the text using the R language

STA 526 DESIGN AND ANALYSIS OF CLINICAL EXPERIMENTS
Introduction to fundamental principles and planning techniques for designing and analyzing statistical experiments. Recommended for students in applied fields. Topics: Justification for randomized controlled clinical trials, methods of randomization, blinding and placebos, ethical issues, parallel groups design, crossover trials, inclusion of covariates, determining sample size, sequential designs, interim analyses, repeated measures studies. LEC
Prerequisite: STA 505 and STA 506, or STA 504 or permission of instructor.

STA 527 STATISTICAL ANALYSIS I
(Lec/Rec - 4 CREDITS)
This course covers topics in descriptive statistics, probability, inference, and experimental design, all of which are put together to draw conclusions from uncertainty through analysis of experimental data. Although a general statistical methods course, the material (through examples) is geared towards sciences majors, especially those in the health sciences. This course looks into the underlying reasoning behind the techniques rather than just pure application.
Prerequisite: one Semester of calculus. ***May not be used for credit for MA, MS or MPH with concentration in Biostatistics students.*****

STA 528 STATISTICAL ANALYSIS II
(Lec/Rec – 4 credits)
This course is a continuation of the introduction to the statistical analysis of data and statistical design of experiments with an emphasis on regression methods. The material covered includes study design and the role of regression methods, simple linear regression, multiple regression, generalized linear models with a focus on logistic and Poisson outcomes, interactions, confounding variables, other regression models as time allows and statistical software usage. Statistical techniques will be demonstrated using real-world examples. This is a hands-on course and students will be doing calculations and analyses, not just interpreting analyses done by others.

STA 529 STATISTICSL ANALAYSIS III
This is a course in statistical analysis of data and statistical design of experiments with an emphasis on more advanced topics. The material covered includes survival analysis techniques, hierarchical linear models, mixed linear models, generalized estimating equations, repeated measures and longitudinal analysis, methods for assessing reliability, cluster computational methods, statistical software usage, and other topics as time allows. Statistical techniques will be demonstrated using real-world examples. This is a hands-on course and students will be doing calculations and analyses, not just interpreting analyses done by others.

STA 531 THEORY AND METHODS OF SAMPLE SURVEYS
Introduction to theory and practice of sample surveys involving collection of statistical data from planned surveys. LEC . *Prerequisite:* STA 503 or permission of instructor

STA 536 STATISTICAL DESIGN AND ANALYSIS OF EXPERIMENTS
Introduces factorial experiments, fractional factorial experiments, confounding, lattice designs, various incomplete block designs, efficiency of experimentation, and problems of design construction. LEC
Prerequisite: STA 504 or permission of instructor.

STA 537 SEQUENTIAL ANALYSIS
Deals with statistical methods for estimation and testing hypotheses when samples are observed and analyzed sequentially. LEC/*Prerequisite:* STA 522.

STA 545 DATA MINING I
This course presents the topic of data mining from a statistical perspective, with attention directed towards both applied and theoretical considerations. An emphasis will be placed on

supervised learning methods. Topics include: linear and logistic regression, discriminant analysis, shrinkage methods, subset selection, dimension reduction techniques, classification and regression trees, ensemble methods, neural networks, and random forests. Model selection and estimation of generalization error will be emphasized. Considerations and issues that arise with high-dimensional (N<<p) applications will be highlighted. Applications will be presented in R to illustrate methods and concepts.
Prerequisite: STA 511

STA 546 DATA MINING II
This course presents the topic of data mining from a statistical perspective, with attention directed towards both applied and theoretical considerations. An emphasis will be placed on unsupervised learning methods; designed to discover and model patterns in data. Applications to high-dimensional data (N<<p) and big data (N>>p) will be highlighted. Topics include: Market basket analysis, generalized association rules, recommender systems, hierarchical and prototype-based clustering, self organizing maps, model selection, factor analysis, data visualization, probabilistic graphical models – with a focus on Bayesian Networks and Gaussian Graphical Models. This course includes "online computational labs", which demonstrate methods and concepts in R,using real data.
Prerequisite: STA 511

STA 551 STOCHASTIC PROCESSES
For graduate students who have had an introduction to probability theory and advanced calculus. Concepts, properties, basic theory, and applications of stochastic processes. LEC
Prerequisite: STA 521 or permission of instructor.

STA 561 LONGITUDINAL DATA ANALYSIS AND TIME SERIES
Introduction to methods for analyzing longitudinal and time series data. Topics: Random coefficient regression models, growth curve analysis, hierarchical linear models, general mixed models, autoregressive and moving average models for time series data, and the analysis of cross-section time series data. LEC/*Prerequisite:* STA 504

STA 567 BAYESIAN STATISTICS
The Bayesian approach to statistical design and analysis can be viewed as a philosophical approach or as a procedure-generator. The use of Bayesian design and analysis is burgeoning. In this introduction to Bayesian methods, we consider basic examples of Bayesian thinking and formalism on which more complicated and comprehensive approaches are built. These include

adjusting estimates using related information, the use of Bayes Factors in testing of hypotheses, the relationship of the prior and posterior distributions, and the key steps in a Bayesian analysis. We consider the Bayesian approach that requires a data likelihood (the sampling distribution) and a prior distribution. From these, the posterior distribution can be computed and used to inform statistical design and analysis. Applications of this technique are presented. LEC/*Prerequisite:* STA 521

STA 571 SPECIAL TOPICS IN STATISTICS
Special topics courses provide regular classroom instruction in evolving areas of biostatistics. They are used to educate students on topics that have not yet been included in permanent course offerings. LEC
Prerequisite: permission of instructor.

STA 575 SURVIVAL ANALYSIS
Provides an advanced course on the use of life tables and analysis of failure time data. Topics: Use of Kaplan-Meier survival curves, use of log rank test, Cox proportional hazards model, evaluating the proportionality assumption, dealing with non-proportionality, stratified Cox procedure, extension to time-dependent variables, and comparison with logistic regression approaches. LEC*:. Prerequisite:* STA 504 and 522.

STA 581 MULTIVARIATE DATA ANALYSIS
Presents methods for analyzing multiple outcome variables simultaneously, and classification and variable reduction. Topics: Multivariate normal distribution, simple, partial, and multiple correlation; Hotelling's T-squared, multivariate analysis of variance, and general linear hypothesis, and discriminant analysis, cluster analysis, principal components analysis, and factor analysis. LEC .
Prerequisite: MTH 142 (second semester calculus) and STA 505 or STA 527, or STA 503

STA 589 STATISTICAL CONSULTING
(1 CREDIT per semester)
Principles and practices of statistical and biostatistical consulting; supervised experience in consultation; report writing and other aspects of consulting; case studies; participation in discussion of actual cases. LAB
Prerequisites: STA 504 or permission of instructor

STA 600 INDEPENDENT STUDY
(1-8 CREDITS per registration) TUT – Grade of S or U given

STA 601 PROJECT GUIDANCE (MS Students **only**) (1-6 credits)

Masters of Science Bioinformatics and Biostatistics student register for this course in connection with their practical training and project under their major advisor. Grade of S or U given

STA 609 ADVANCED STATISTICAL GENETICS
Issues involving whole-genome analysis, model selections for genetic architecture and advanced statistical pattern recognition tools. Topics: Bayesian modeling for genomic data; MCMC and non-parametric linkage analysis in pedigree analysis, genetic mapping of complex traits by the
EM algorithm; HMM for DNA sequence analysis; Time course models and neural networks for microarray data and so on. LAB
Prerequisites: STA 509 and STA 522, or permission of instructor

STA 612 ADVANCED CLINICAL TRIAL/DESIGN ANALYSIS
LEC This course is designed to extend the principles and techniques for designing and analyzing data from clinical trials presented in an introductory course on the subject with a focus on the study of disease.

STA 617 ADVANCED CATEGORICAL DATA ANALYSIS
Presents useful methods for analyzing categorical data that are not covered in STA 517. Topics: Exact conditional inference, conditional logistic regression, models for matched pairs, repeated measures, and multinomial regression based on general response functions, latent class models analysis, and mixed models for categorical data. LEC
Prerequisite: STA 517

STA 621 THEORY OF STATISTICAL INFERENCE
This course provides students with an advanced theoretical foundation for statistical inference. Topics: Decision theory, methods of print estimation and properties, interval estimation, tests of hypotheses, and Bayesian inference. LEC
Prerequisite: STA 504 and STA 522

STA 622 LIMIT THEORY
Course presents a theoretical foundation for the development of asymptotic methods that often are employed in biostatistical research. Topics: Review of different modes of convergence, Cramer-Wold device, multivariate CLT, asymptotic theory of empirical distribution and sample quantiles, Bahadur's representation, asymptotic theory of sample moments, delta method and its multiparameter generalization, U-statistics: asymptotic theory and its statistical applications, Hoeffding's decomposition, asymptotic theory of maximum likelihood estimation, Wald's consistency theorem for MLE, asymptotic normality and

efficiency, asymptotic theory of GLRTs, and statistical applications such as asymptotic theory for categorical data, linear models, and generalized linear models. LEC
Prerequisites: STA 621 or permission of instructor

STA 641 THEORY OF LINEAR MODELS
This course provides theoretical justification for ANOVA, regression, and covariance analyses. It is meant to provide the student with a deep and unified knowledge of linear models analysis.
Topics: Matrix algebra, multivariate normal distribution, distribution of quadratic forms, least squares, generalized least squares, Gauss-Markov Theorem, tests of general linear hypotheses, less than full-rank models, estimable functions, testable hypothesis, balanced and unbalanced data,
Type I, II, III, and IV sum of squares and tests, Reparametrization, general linear mixed model. LEC
Prerequisite: STA 522 and STA 504

STA 642 TOPICS IN ADVANCED MODELING
This course covers advanced methods of modeling that are highly useful in practice but are not covered in earlier courses. Topics: Fitting of generalized linear models, diagnostics, asymptotic theory, over-dispersion, estimating equations, mixed models, generalized additive models, smoothing, and other topics chosen by the instructor. LEC
Prerequisite: STA 641

STA 661 ADVANCED TOPICS IN LARGE SAMPLE THEORY
LEC *Prerequisite:* STA 621 and STA 622
This course aims to serve as a bridge between STA 622 and real-world statistical research by presenting a collage of advanced topics on large sample theory.

STA 667 ADVANCED BAYESIAN INFERENCE
LEC
The Bayesian approach to statistical design and analysis can be viewed as a philosophical approach or as a procedure-generator. The use of Bayesian design and analysis is burgeoning. In this introduction to Bayesian methods, we consider basic examples of Bayesian thinking and formalism on which more complicated and comprehensive approaches are built. These include adjusting estimates using related information, the use of Bayes Factors in testing of hypotheses, the relationship of the prior and posterior distributions, and the key steps in a Bayesian analysis. We consider the Bayesian approach that requires a data likelihood (the sampling distribution) and a prior distribution. From these, the posterior distribution can be computed and used to inform statistical design and analysis. Applications of this technique are presented.
Prerequisite: STA 567 and STA 641, or permission of instructor.

STA 671 ADVANCED SPECIAL TOPICS IN STATISTICS
LEC
Advanced special topics courses provide regular classroom instruction at the PhD level in evolving areas of biostatistics. They are used to educate students on advanced topics that have not yet been included in permanent course offerings. LEC. *Prerequisite:* Permission of instructor.

STA 675 ADVANCED SURVIVAL ANALYSIS
LEC
This course explores the Martingale approach to the statistical analysis of counting processes, with an emphasis on applications to the analysis of censored failure time data. Topics: Martingales, counting processes, log-rank test, Cox regression, weak convergence, Martingale central limit theorem, applications to survival analysis.
Prerequisite: STA 575 and STA 561

STA 681 MULTIVARIATE THEORY
LEC
Theoretical presentation of multivariate methods. Topics: Canonical correlation, principal components, distribution of the roots of a determinantal equation, classification and discrimination methods, and Bayesian approach to multivariate analysis. LEC
Prerequisite: STA 581 and STA 641. Concurrent registration in STA 641 is admissible.

STA 699 SUPERVISED TEACHING
(1 CREDIT per semester, grade of S or U given)
TUT
Prerequisite: permission of instructor

STA 700 THESIS GUIDANCE
(1-8 CREDITS per semester)
TUT- Grade of S or U given
Prerequisite: permission of instructor

STA 745 TOPICS IN DESIGN AND ANALYSIS OF OBSERVATIONAL STUDIES
LEC
Evidence-generation methods from observational data will be studied. Topics include: concept of evidence, aspects of design and analysis of observational data, engaging the issue of bias—topics in quantitative bias analysis, uncertainty in clinical medicine, generalizing randomized

clinical trial results to broader populations, detecting treatment effect heterogeneity and subgroup identification.
Prerequisite: Course is designed for PhD students who have passed both parts of the qualifying exams

STA 781 READING AND RESEARCH
(1-8 CREDITS per semester)
TUT – Grade of S or U given
Prerequisite: permission of instructor

STA 782 DEPARTMENTAL SEMINAR
(0 CREDITS per semester)
Study of recent research of faculty and visiting speakers. All full time and certified full time graduate students in the Department are ***required*** to attend except MPH students. The MPH program has a separate seminar designed for the MPH students.
SEM

UNIVERSITY REGULATIONS
http://grad.buffalo.edu/study/progress/policies.html
It is the student's responsibility to check with the graduate school for any updates.

TRANSFER CREDIT

Each graduate program determines the applicability of graduate courses offered for transfer credit. Only those graduate courses completed with a minimum grade of 'B' (3.0) are eligible as transfer credit. Courses with 'S' or 'P' grades are not transferable unless the transcript specifically states they are equivalent to a 'B' grade or higher. Credits earned in correspondence or undergraduate courses may not be transferred.

Students requesting approval for transfer credit should make their request in writing to the Director of Graduate Studies at the first opportunity after admission to the program and within the first semester of study. A copy of the course outline and description should also be provided. A maximum of 6 credit hours of graduate work may be transferred for the MA and MS, and a maximum of 30 credit hours acquired in master's degree training may be transferred to the PhD Thesis guidance and research credits are not transferable.

AGE LIMIT FOR PRIOR COURSEWORK

All coursework (whether transfer or UB credits) more than 10 years old must be petitioned at the of admission to the program. If these credits were included in an approved extension of time limit petition, they are valid only until the expiration date of that petition. Any further extension of the approved time limit for degree completion will require, concurrently, a re-petition for approval of these older courses. Requests for approval of courses more than 10 years old must be petitioned through the Graduate School by completing the ***Graduate Student Petition Form*** located on the web at http://grad.buffalo.edu/study/progress/forms.html. Appropriate justification of how the course(s) relate to the student's program and how the student has kept current with the subject matter of each course must be provided.

Prior Coursework Checklist:

- ✓ Complete form for prior coursework toward a degree program
- ✓ Include letter stating how student has maintained the knowledge gained from these courses,
- ✓ Include CV or resume
- ✓ Sign the form
- ✓ present to the Director of Graduate Studies for approval (do not send directly to the graduate school

REGISTRATION

All students are required to consult their advisor prior to registration, and to register before the beginning of each Fall and Spring semester while matriculated in the program according to the procedures and within the deadlines established by the Office of Records and Registration. This includes semesters in which formal courses are taken, and also semesters in which a student is working on their thesis/dissertation/project. No credit will be allowed for work done without proper registration. It is important that students verify their registration.

Registration Deadlines. The registration timetable, course offerings and class schedules are posted on the University's web site at http://registr.buffalo.edu/schedules/index.php. Continuing students may take advantage of early registration by registering in November for the Spring semester and April for the Fall semester. Registration is continuous through the last day of drop/add. It is financially advantageous to register before the University's first billing in the third week of July (for Fall) and the third week in December (for Spring).

Registration Checklist:

- ✓ verify registration before the add/drop deadline each semester

REQUIREMENTS FOR FULL-TIME REGISTRATION

- Full-time registration is defined as 12 credit hours per semester for students without an assistantship, or 9 credit hours per semester for those students with an assistantship or grant support.
- Full-time registration is a necessary condition of appointment for an assistantship and/or tuition waiver.
- International students must maintain full-time registration as a condition of their student visa.

CONTINUOUS REGISTRATION AND LEAVES OF ABSENCE

- Both full-time and part-time students must register each Fall and Spring semester for a minimum of one credit hour until all degree requirements are met (including the final defense of the thesis/dissertation/ project). A zero credit course does not fulfill the requirement for continuous registration.
- Students must register for a minimum of one credit hour in the semester following an approved leave of absence and in the semester of degree conferral.
- Students must be registered in the semester they defend their thesis/dissertation. They may not be on a leave during the semester the degree is conferred. If a leave of absence terminates at the end of the spring semester, registering for a minimum of one credit hour for the summer session is required for an August degree conferral.

If continuous registration is not possible at any time, the student must secure a leave of absence at least two weeks prior to the start of the semester in which the leave is to begin. Approval for a leave of absence must be petitioned through the Graduate School by completing the *Graduate Student Petition Form* located on the web at http://grad.buffalo.edu/content/dam/www/graduate/documents/students/pet_loa.pdf

Requests for Leaves of Absence must be negotiated through the chair or director of graduate studies of the student's major department using a Petition for Leave of Absence: http://grad.buffalo.edu/study/progress/forms.html. The form **must** then be forwarded to the Graduate School for review **by the end of the first week of the semester in which the Leave is to begin**. Normally, Leaves are granted for a maximum of one year, but may be extended for up to one additional year if circumstances warrant. Each department may establish its own

policies within the limits of these guidelines. All Leave requests must be supported by adequate documentation.

Students approved for a Leave of Absence remain liable for any outstanding tuition and fee charges.

International students are advised to consult with International Student and Scholar Services, 210 Talbert Hall, North Campus, (716) 645-2258, prior to applying for a Leave of Absence.

Failure to register for classes or secure a Leave of Absence by the end of the first week of the semester in which the leave is to begin, will result in the student losing his/her access to register for classes in a future semester. To regain registration access within a subsequent five-year period, the student's home academic department must file a semester record activation request on behalf of the student (see the *Returning Student Semester Record Activation and Associated Fee* section immediately below for more details).

- The Graduate School will not approve a leave of absence for 'personal reasons,' you must be specific and present strong justification for your request.
- The Graduate School will not approve a leave of absence if a student is not in good academic standing.
- Students may not petition for a leave of absence <u>after</u> the leave has occurred.
- Students returning from a leave of absence are considered re-entering students and must be re-instated in the department in order to register (see section on Re-Entry.)

It should be noted that, normally, leaves are approved for a maximum of one year. A total of more than two years will not be approved. <u>Students who are not on a leave of absence and fail to register for a semester are considered having left the University and must reapply to the department in order to reenter</u>. The department reserves the right to accept or deny readmission, and to decide what prior course work can be applied to the degree. Therefore, it is important to maintain continuous registration.
NOTE: No credit will be allowed for work done without proper registration.

<u>Leave of Absence Checklist</u>:

- ✓ complete Graduate Student Petition for A Leave of Absence
- ✓ complete Reason for Leave
- ✓ sign the form
- ✓ forward to the Department (do not send directly to the Graduate School)

RE-ENTRY

When a student returns from an approved leave of absence, he/she must request to have their status reactivated by the Department. This request should be made a minimum of two weeks before the start of the semester.

Academic departments may file a semester record activation request for graduate students who were previously admitted into an academic program through GrAdMIT, *and* had a break in attendance of no more than five (5) years, *and* had neglected to secure an approved Leave of Absence from the Graduate School. Once reviewed and approved by the Vice Provost for Graduate Education, a new semester record will be created with *exactly the same academic career, program, and plan* as recorded for the last semester in which the student attended UB. At the time of semester record activation, the student will be assessed a non-refundable record activation fee (currently $350).

It is the prerogative of the academic department to decide whether or not to process/endorse a former student's request for Semester Record Activation and return to graduate study as described in the previous paragraph. The department also determines how much of the previously completed work may be applied toward the graduate degree program, within established Graduate School guidelines.

Any graduate student who has had an enrollment lapse of more than five (5) years must reapply through the graduate program's regular application process.

Re-entry Checklist:

✓ request the Department file a semester record activation request

GRADUATE COURSE CREDIT

Graduate Courses for Graduate Credit is granted only for 500, 600 and 700 level courses provided proper registration requirements are met.

Undergraduate Courses for Graduate Credit requires prior petition and approval by the Dean of the Graduate School. ***Graduate Student Petition Forms*** are located on the web at http://registrar.buffalo.edu/pdfs/OutsideofCareerPetition.pdf

Undergraduate courses may be taken by graduate students as appropriate prerequisites to their chosen field of study but may not be used to satisfy graduate program requirements or carry graduate credit. Exceptions are possible for some 400-level courses subject to approval in advance by the Graduate School. In order to obtain approval, the student must file a Petition for Course Credit Outside Your Primary Career that must include:

a.) Justification for taking an undergraduate course for graduate credit. (For example: that the course curriculum is important to the student's program and not offered in a graduate course.)
b.) The signature of the course instructor, who must be a UB tenured or tenure-track faculty member, with a brief description of the nature and extent of the extra work to be assigned graduate students.
c.) The signature of the department chair or director of graduate studies of the student's graduate program.

A student may file a maximum of two petitions for up to eight credit hours of this nature while pursuing a graduate degree.

All such petitions must be filed prior to the end of the official add/drop period of the semester of registration. The student must officially register for the course during the designated registration period. The petition must be submitted to the department prior to the start of the semester in which the student will enroll in the course; no requests for retroactive approval will be considered.

Undergraduate Courses for Graduate Credit Checklist:

- ✓ complete Petition For Course Credit Outside Your Primary Career Graduate Credit
- ✓ provide description of additional work required of the student
- ✓ obtain signature of course instructor
- ✓ complete justification
- ✓ sign
- ✓ forward to the Department (do not send directly to the Graduate School)

GRADING

- Students are expected to maintain at minimum a 'B' average (3.0)
- Students receiving two or more 'C' (or lower) grades may be dismissed from the program.

- Students electing to receive an S/U grade for a course must inform the instructor in writing by the fourth week of the semester, or the letter grade system will prevail. If the instructor approves the request, a copy of the approval should be sent to the department for the student's file. An 'S' grade will be awarded only in those instances where a student's letter grade would be 'C' or better**.**
- 'S' grades are not acceptable for required courses.
- 'L' grades are assigned for thesis/dissertation courses where continuing work is to be indicated instead of a final grade. 'L' grades automatically convert to 'S' grades at degree conferral.

'J' grades denote an invalid grade. Students should immediately consult with the professor to validate their grade or the 'J' will revert to a grade of 'F' at the end of the following semester

REPEATING REQUIRED COURSES
http://grad.buffalo.edu/study/progress/policies.html

Per the Graduate School policy, if a graduate student repeats a course that is not normally "repeatable" ("repeatable" courses include dissertation, research, thesis, project or portfolio guidance; independent study; directed readings, etc.), only the highest grade earned in the course will be counted toward the degree and used to calculate the grade point average associated with the graduate degree program requirements. However, the student's official graduate transcript will record all courses attempted (including repeated courses). All resulting grades earned are calculated in the cumulative GPA reflected on the students' final official transcript. Also note that:

- Students who repeat a course must officially register for it.
- Students are responsible for the tuition for repeated courses even if they are currently receiving a tuition waiver.

INCOMPLETE GRADES

- A grade of 'Incomplete' ('I/U') may be assigned only when the student has been unable to complete all the assigned projects and/or examinations in a course. Such circumstances must be communicated to the faculty member as soon as known, but no later than the end of the semester during which the course is taken.
- A grade of 'Incomplete' ('I/U) is not available to students who have not performed a "C" or better in the course material completed.
- A grade of "Incomplete' ('I/U') cannot be assigned for thesis/dissertation guidance.

- If an 'I' is given, a letter grade must be assigned within two semesters (May 31st for the Spring semester and December 31st for the Fall semester.) If the course requirements are not completed by the deadline, the 'Incomplete' will automatically default to an 'Unsatisfactory' 'U' or 'F' grade.

Individual instructors may set their own conditions for removing 'I' grades providing the time limit is no longer than specified by the University. The instructor may set an earlier deadline for completion of the course requirements. If an earlier date for completion is set, the instructor shall inform the student thereof in writing. **A student may not re-register for any course in which the student has an interim 'IU' grade**.

Incomplete Grade Checklist:

- ✓ Be sure to verify the change of grade has been made in the Office of Records and Registration

STUDENT GENERAL PROGRESS REPORTS

The academic progress of each student is reviewed by their advisor at the end of the Spring semester. This review is designed to develop a program most suitable for each student, to discuss their coursework and plans for upcoming registration, and to advise a student of any deficiency in their progress toward degree conferral.

PROGRAM PROBATION

Students who receive a grade of 'U', 'D' or 'F' in any course required for their degree, or whose cumulative GPA falls below 3.0 will have immediate academic review and may be placed on academic probation. Students placed on probation will be notified in writing the terms of the probation and its removal. Students not meeting the written terms of their academic probation may be dismissed from the University. MPH students are required to obtain a grade of "B" or better in each course. Those courses earning less than a "B" must be repeated.

COURSE RESIGNATIONS

Graduate Students have the prerogative to resign any course for which they have registered without Q.P.A. penalty through the end of the 11 week of the fall or spring term. All course resignations processed during the permissible dates (as published in the Class Schedule available through the Office of the Registrar) will be indicated as officially resigned courses by the notation

'R' on all grade reports, transcripts, and other official University documents. Resignation from all courses should be done through the HUB Student Center, which students may access through the MyUB portal. There are no quality points attached to an 'R' designation.

All course resignations processed within the official deadlines will be indicated as officially resigned by the notation 'R' on grade reports, transcripts, and other official University documents.

Course Resignation Checklist:

- ✓ process resignation of course thorough MyUB Portal.

AUDITING COURSES

A student wishing an "Audit" (N) grade in a course must officially register for the course. The student must also submit a written request to the instructor by the fourth week of class. The instructor's decision will be final and will be transmitted to the student in writing. A copy of the approval must also be forwarded to the department for the student's file. The instructor's decision is final and must be communicated to the student in writing in a timely manner. A student may repeat a previously audited course and receive a weighted grade and academic credit.

INDEPENDENT STUDY (STA 600)

This course is available as an elective when appropriate to the student's educational goals. Students must receive approval from both their supervising faculty and the Director of Graduate Studies before registering. Students must provide their supervising faculty with a course description for signature. This will be signed by both faculty and student and forwarded to the Director of Graduate Studies for approval. A copy of the approved description is attached to the ***Application to Candidacy*** when filed (see section on Application to Candidacy.)

Independent Study Checklist:

- ✓ brief summary of the goals and objectives of the independent study
- ✓ syllabus outlining activities to be carried out
- ✓ tangible mechanism for assessing student performance, e.g., test, term paper or a grant proposal
- ✓ ability to demonstrate that the independent study includes an amount of effort equivalent to the number of credits requested.

CERTIFICATION OF FULL-TIME STATUS

Students who are required to maintain full-time status for the purpose of tuition assistantship/scholarship, loan deferral or immigrant status may be certified as full time when registering for less than 12 graduate credit hours (or 9 if receiving a graduate assistantship) if the following conditions have been met:

- ✓ all coursework has been completed
- ✓ registration will include a minimum of one credit hour per semester
- ✓ student is engaged in full-time research on their thesis/ dissertation/project
- ✓ the ***Application to Candidacy*** form has been completed and signed by all committee members

NOTE: It is not required that the proposal be defended at this time. The ***Certification of Full-Time Status*** form is located on the web at http://grad.buffalo.edu/study/progress/forms.html

Students must be registered for the semester in which they are filing.

Certification of Full-time Status Checklist:

- ✓ complete (type) the ***Certification of Full-Time Status Form***
- ✓ obtain signature of academic advisor
- ✓ attach photocopy of the ATC form signed by all committee members
- ✓ forward to the Department (do not send directly to the Graduate School)

ADDITIONAL INFORMATION ABOUT GRADUATE STUDIES AT UB

Graduate School Web Site: www.grad.buffalo.edu

Forms (*Application to Candidacy, Graduate Student Petition Form, Certification of Full-Time Status Form, Outside Reader Appointment, Outside Reader Response Form*);
Graduate School Policy and Procedures Manual; and
Guidelines for Graduation and Theses and Dissertation Preparation

ACADEMIC HONESTY

ACADEMIC INTEGRITY

Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas.

When an instance of suspected or alleged academic dishonesty by a student arises, it shall be resolved according to the procedures set forth herein. These procedures assume that many questions of academic dishonesty will be resolved through consultative resolution between the student and the instructor.

It is recommended that the instructor and student each consult with the department chair, School or College dean, or the Graduate School if there are any questions regarding these procedures.

Examples of Academic Dishonesty

Academic dishonesty includes, but is not limited to, the following:

- **Previously submitted work**. Submitting academically required material that has been previously submitted -- in whole or in substantial part -- in another course, without prior and expressed consent of the instructor.
- **Plagiarism**. Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.

- **Cheating**. Soliciting and/or receiving information from, or providing information to, another student or any other unauthorized source (including electronic sources such as cellular phones and PDAs), with the intent to deceive while completing an examination or individual assignment.
- **Falsification of academic materials**. Fabricating laboratory materials, notes, reports, or any forms of computer data; forging an instructor's name or initials; resubmitting an examination or assignment for reevaluation which has been altered without the instructor's authorization; or submitting a report, paper, materials, computer data, or examination (or any considerable part thereof) prepared by any person other than the student responsible for the assignment.
- **Misrepresentation of documents**. Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- **Confidential academic materials**. Procurement, distribution or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- **Selling academic assignments**. No person shall sell or offer for sale to any person enrolled at the University at Buffalo any academic assignment, or any inappropriate assistance in the preparation, research, or writing of any assignment, which the seller knows, or has reason to believe, is intended for submission in fulfillment of any course or academic program requirement.
- **Purchasing academic assignments**. No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirement.

Consultative Resolution

Step 1. If an instructor has reason to believe that a student may have committed an act of academic dishonesty, the instructor shall notify the student suspected of academic dishonesty by e-mail to the student's UB IT address with receipt requested, by certified mail return receipt requested, or by written notice delivered in person with a copy countersigned by the student and retained by the instructor within 10 academic days[1] of discovery of the alleged incident.

Once the alleged incident has occurred, the student may not resign from the course without permission of the instructor.

The instructor shall meet and consult with the student within 10 academic days[1] of the date of notification. If the student fails to attend the consultative meeting, the instructor has the authority to reach a decision and to impose a sanction (if appropriate) without the student consultation.

At consultation, the instructor shall inform the student of the allegations relating to the specific infringement, and the student shall be given a copy of the Academic Integrity Policy and Procedures.

At the request of either or both parties, the consultation may be recorded. A departmental note-taker (a staff or faculty member, but not a teaching assistant) may record consultation proceedings. The student must agree to the presence of the note-taker, and the student may also have a note-taker in attendance.

Step 2. If, after consultation with the student, the instructor believes the student did not commit an act of academic dishonesty, no sanctions may be imposed. The instructor will orally inform the student of that finding and, if the student so requests, will provide the student with a written statement confirming that finding. Procedures end.

If, after consultation with the student, the instructor believes the student did commit an act of academic dishonesty, the instructor has the authority to impose one or more of the following sanctions:

1. **Warning**. Written notice to the student that he/she has violated a University academic integrity standard and that the repetition of the wrongful conduct may be cause for more severe sanctions.
2. **Revision of Work**. Requiring the student to replace or revise the work in which dishonesty occurred. (The instructor may choose to assign a grade of "I" [Incomplete] pending replacement or revision of the work.)
3. **Reduction in Grade**. With respect to the particular assignment/exam or final grade in the course.
4. **Failure in the Course**. To be indicated on the transcript by a grade of "F" without comment.
5. **Such other reasonable and appropriate sanction(s)** as may be determined by the instructor (or Committee at later levels of review) with the exception of those subsequently described under #6.
6. **Recommendation of any of the following University sanctions** (these require approval at the department, College/School, and Graduate School levels).
    1. *Failure in the Course with Citation of Academic Dishonesty:* To be indicated by an "F" on the transcript with the notation that the grade of "F" was assigned for reason of academic dishonesty. Only the Dean of the Graduate School or his or her designee may impose this sanction.
    2. *Suspension from the University:* For a definite term upon stated conditions. Only the University President or his/her designee may suspend a student from the University.
    3. *Expulsion from the University:* With comment on the transcript. Only the University President or his/her designee may expel a student from the University.

Step 3. The instructor shall provide the student with a copy of the decision, sanction(s) imposed, and the student's right to appeal that decision. The instructor's decision letter shall be sent to the student (via certified, return receipt mail), the department chair, and the Dean of the Graduate School within 10 academic days[1] of the date of the consultation meeting. This statement of decision shall be included in the student's confidential file maintained in the Graduate School. The student shall have access to this file.

University Sanctions. If the sanctions imposed at the instructor level include recommendation of University sanctions (as listed in Step 2.6), departmental level procedures are required, and shall be initiated within 10 academic days[1] of the department chair's receipt of the statement of decision.

Right to Appeal. The student may appeal the instructor's findings. The student's request for an appeal, including specification of the grounds for appeal, must be submitted in writing to the instructor and to the department chair no later than 10 academic days[1] after the instructor has notified the student of his or her decision.

Departmental Level Procedures

Step 1. The instructor and student have no more than 10 academic days[1] following the filing of the request for the initiation of departmental proceedings to deliver evidentiary materials to the department chair. The instructor and student shall each provide the department chair with a written statement of evidence supporting his or her position, any relevant documentation, and the names of potential witnesses.

If the department chair is the faculty member who has brought the academic dishonesty charge against the student, or if a department is unable to assemble a committee because of a limited number of faculty or students, direct consideration at the college or school level may be requested.

Pending resolution, the instructor shall temporarily assign a grade of "I" (Incomplete). This "I" grade can only be adjusted by resolution of the case.

Step 2. Upon review of relevant materials (including all evidence and statements communicated during consultation), if the department chair does not deem it necessary to consider further the circumstances of the case, the department chair will notify the student (via certified, return receipt mail), the instructor, the cognizant academic dean, and the Dean of the Graduate School of his or her decision within 20 academic days[1] of receipt of the student's appeal or instructor's recommendation. If the sanctions imposed at this stage include recommendation of University sanctions (as listed in Consultative Resolution Step 2.6), decanal level procedures are required (see "Decanal Level Procedures").

Alternatively, if the department chair deems it necessary to consider further the circumstances of the case, he or she shall convene the Departmental Adjudication Committee within 20 academic days[1] of the date the department office received the request for initiation of departmental proceedings (see Appendix A).

The department office shall convey all evidentiary materials to the Departmental Adjudication Committee, the student, and the instructor at the time the notice of the hearing is delivered. The student and the instructor shall be given at least 72 hours notice of the hearing.

At hearing(s), the Departmental Adjudication Committee shall provide sufficient opportunity for both principals to present their positions and shall allow each principal the right to question the presentation(s), written or verbal, of those who contribute information to the committee.

The hearing(s) shall be conducted in a fair and expeditious manner, but shall not be subject to the rules governing a legal proceeding. Each principal shall have the right to be present (under unusual circumstances, if either party is considered to pose a physical threat to the other or to the committee, the chair of the committee may request that either the student or instructor participate by phone) and to have one advisor present at all hearings. In no such case will the advisor be an attorney, unless he or she is a member of the UB faculty who is not acting in a legal capacity on behalf of a principal. An advisor may not speak on behalf of or advocate for a principal or otherwise address members of the hearing committee.

The technical and formal rules of evidence applicable in a court of law are not controlling, and the committee may hear all relevant and reliable evidence that will contribute to an informed result. The Departmental Adjudication Committee shall only consider evidence presented at hearing(s). Discussion of a student's formerly alleged or documented academic misconduct shall not be admissible as evidence to determine whether the student is responsible for breaching the university's academic integrity code in the current case, although such history may be introduced and considered during the sanctioning phase. Hearings shall be confidential (see Appendix B).

The Departmental Adjudication Committee shall provide the department chair with a written statement of recommendations and reasons for recommendations within 10 academic days[1] after the final meeting of the committee. Recommendations may include:

1. **Findings Overturned**. Finding that no academic dishonesty took place and that no sanctions should be imposed.
2. **Findings Sustained**. Finding that academic dishonesty occurred, and the committee is in agreement with the sanction(s) previously imposed or recommended.

3. **Finding of Different Sanction**. Finding that academic dishonesty occurred, but that the sanction(s) previously imposed or recommended are inappropriate and that greater or lesser sanction(s) should be imposed.

Step 3. The department chair considers the Committee's findings and recommendations and renders a final decision. The department chair's decision and the student's right to appeal that decision shall be submitted in writing from the department chair to the student (via certified, return receipt mail), the instructor, the cognizant academic dean, and the Dean of the Graduate School within 10 academic days[1]. from receiving the Departmental Adjudication Committee's statement of recommendations.

The department chair shall forward the record of the matter consisting of all written communications, all written evidence, an audiotape or other record of the hearing, and its statement of recommendations to the Dean of the Graduate School, where a confidential file will be maintained. The student shall have access to this file.

University Sanctions. If the sanction(s) imposed at the departmental level include recommendation of University sanctions (as listed in Consultative Resolution Step 2.6), decanal level procedures are required, and shall be initiated within 10 academic days[1] of the dean's receipt of the statement of decision.

Right to Appeal. The student or the instructor may appeal the department chair's findings. The request for an appeal, including specification of the grounds for appeal, must be submitted in writing to the department chair and to the cognizant academic dean no later than 10 academic days[1] after the department chair has notified the student of his or her decision.

Decanal Level Procedures

Step 1. The instructor and student have no more than 10 academic days[1] following the filing of the request for the initiation of decanal level proceedings to deliver evidentiary materials to the cognizant academic dean. The instructor and student shall each provide the academic dean with a written statement of evidence supporting his or her position, any relevant documentation, and the names of potential witnesses.

Pending resolution, the temporarily assigned grade of "I" (Incomplete) will continue in place. This "I" grade can only be adjusted by final resolution of the pending case.

Step 2. Upon review of relevant materials (including all evidence and statements communicated during consultation), if the academic dean does not deem it necessary to consider further the circumstances of the case, the academic dean will notify the student (via certified, return receipt mail), the instructor, the department chair, and the Dean of the Graduate School of his or her decision within 20 academic days[1] of receipt of the student's appeal or instructor's recommendation. If the sanctions imposed at this stage

include recommendation of University sanctions (as listed in Consultative Resolution Step 2.6), a hearing at the decanal level is required, and procedures below shall be initiated within 20 academic days[1] of the academic dean's receipt of the department chair's statement of decision.

Alternatively, if the academic dean deems it necessary to consider further the circumstances of the case, he or she shall convene the Decanal Adjudication Committee within 20 academic days[1] of the date which the academic dean received the request for initiation of decanal level proceedings (see Appendix C).

The academic dean's office shall convey all evidentiary materials to the Decanal Adjudication Committee, the student, and the instructor at the time the notice of the hearing is delivered. The student and the instructor shall be given at least 72 hours notice of the hearing.

At hearing(s), the Decanal Adjudication Committee shall provide sufficient opportunity for both principals to present their positions and shall allow each principal the right to question the presentation(s), written or verbal, of those who contribute information to the committee.

The hearing(s) shall be conducted in a fair and expeditious manner, but shall not be subject to the rules governing a legal proceeding. Each principal shall have the right to be present (under unusual circumstances, if either party is considered to pose a physical threat to the other or to the committee, the chair of the committee may request that either the student or instructor participate by phone) and to have one advisor present at all hearings. In no such case shall the advisor be an attorney, unless he or she is a member of the UB faculty who is not acting in a legal capacity on behalf of a principal. An advisor may not speak on behalf of or advocate for a principal or otherwise address members of the hearing committee.

The technical and formal rules of evidence applicable in a court of law are not controlling, and the committee may hear all relevant and reliable evidence that will contribute to an informed result. The Decanal Adjudication Committee shall only consider evidence presented at hearing(s). Discussion of a student's formerly alleged or documented academic misconduct shall not be admissible as evidence to determine whether the student is responsible for breaching the university's academic integrity code in the current case, although such history may be introduced and considered during the sanctioning phase. Hearings shall be confidential (see Appendix B).

The Decanal Adjudication Committee shall provide the academic dean with a written statement of recommendations and reasons for recommendations within 10 academic days[1] after the final meeting of the committee. Recommendations may include:

1. **Findings Overturned.** Finding that no academic dishonesty took place and that no sanctions should be imposed.
2. **Findings Sustained.** Finding that academic dishonesty occurred, and the committee is in agreement with the sanction(s) previously imposed or recommended.
3. **Finding of Different Sanction**. Finding that academic dishonesty occurred, but that the sanction(s) previously imposed or recommended are inappropriate and that greater or lesser sanction(s) should be imposed.

Step 3. The academic dean considers the Committee's findings and recommendations and renders a final decision. The academic dean's decision and the student's right to appeal that decision shall be submitted in writing from the academic dean to the student (via certified, return receipt mail), the instructor, the department chair, and the Dean of the Graduate School within 10 academic days[1] from receiving the Decanal Adjudication Committee's statement of recommendations.

The academic dean shall forward the record of the matter consisting of all written communications, all written evidence, an audiotape or other record of the hearing, and its statement of recommendations to the Dean of the Graduate School, where a confidential file will be maintained. The student shall have access to this file.

University Sanctions. If the sanction(s) imposed at the decanal level include recommendation of University sanctions (as listed in Consultative Resolution Step 2.6), Graduate School level procedures are required, and shall be initiated within 10 academic days[1] of the Dean of the Graduate School's receipt of the statement of decision.

Right to Appeal. The student or the instructor may appeal the academic dean's findings, but only based on claims of limitations on, or violations of, applicable due process. Any such appeal request must describe the specific due process violation(s) claimed and must be submitted in writing to the academic dean and to the Dean of the Graduate School no later than 10 academic days[1] after the academic dean has notified the student of his or her decision.

Graduate School Level Procedures

Step 1. The instructor and student have no more than 10 academic days[1] following the filing of the request for the initiation of Graduate School level proceedings to deliver evidentiary materials to the Dean of the Graduate School. The instructor and student shall each provide the Dean of the Graduate School with a written statement of evidence supporting his or her position, any relevant documentation, and the names of potential witnesses.

Pending resolution, the temporarily assigned grade of "I" (Incomplete) will continue in place. This "I" grade can only be adjusted by final resolution of the pending case.

Step 2. Upon review of relevant materials (including all evidence and statements communicated during consultation), if the Dean of the Graduate School does not deem it necessary to consider further the circumstances of the case, the Dean of the Graduate School will notify the student (via certified, return receipt mail), the instructor, the department chair, and the cognizant academic dean of his or her decision within 20 academic days[1] of receipt of the student's appeal or instructor's recommendation. If the sanctions imposed at this stage include recommendation of University sanctions (as listed in Consultative Resolution Step 2.6), the Dean of the Graduate School will pursue appropriate steps to implement or seek implementation of such sanction(s).

Alternatively, if the Dean of the Graduate School deems it necessary to consider further the circumstances of the case, he or she shall convene the Graduate School Adjudication Committee within 20 academic days[1] of the date on which the Dean of the Graduate School received the request for initiation of Graduate School level proceedings (see Appendix D).

The Graduate School shall convey all evidentiary materials to the Graduate School Adjudication Committee, the student, and the instructor at the time the notice of the hearing is delivered. The student and the instructor shall be given at least 72 hours notice of the hearing.

At hearing(s), the Graduate School Adjudication Committee shall provide sufficient opportunity for both principals to present their positions and shall allow each principal the right to question the presentation(s), written or verbal, of those who contribute information to the committee.

The hearing(s) shall be conducted in a fair and expeditious manner, but shall not be subject to the rules governing a legal proceeding. Each principal shall have the right to be present (under unusual circumstances, if either party is considered to pose a physical threat to the other or to the committee, the chair of the committee may request that either the student or instructor participate by phone) and to have one advisor present at all hearings. In no such case shall the advisor be an attorney, unless he or she is a member of the UB faculty who is not acting in a legal capacity on behalf of a principal. An advisor may not speak on behalf of or advocate for a principal or otherwise address members of the hearing committee.

The technical and formal rules of evidence applicable in a court of law are not controlling, and the committee may hear all relevant and reliable evidence that will contribute to an informed result. The Graduate School Adjudication Committee shall only consider evidence presented at hearing(s). Discussion of a student's formerly alleged or documented academic misconduct shall not be admissible as evidence to determine whether the

student is responsible for breaching the university's academic integrity code in the current case, although such history may be introduced and considered during the sanctioning phase. Hearings shall be confidential (see Appendix B).

The Graduate School Adjudication Committee shall provide the Dean of the Graduate School with a written statement of recommendations and reasons for recommendations within 10 academic days[1] after the final meeting of the committee. Recommendations may include:

1. **Findings Overturned**. Finding that no academic dishonesty took place and that no sanctions should be imposed.
2. **Findings Sustained**. Finding that academic dishonesty occurred, and the committee is in agreement with the sanction(s) previously imposed or recommended.
3. **Finding of Different Sanction**. Finding that academic dishonesty occurred, but that the sanction(s) previously imposed or recommended are inappropriate and that greater or lesser sanction(s) should be imposed.

Step 3. The Dean of the Graduate School considers the committee's findings and recommendations and renders a final decision. The Dean of the Graduate School's decision shall be submitted in writing to the student (via certified, return receipt mail), the instructor, the department chair, and the cognizant academic dean within 10 academic days[1] from receiving the Graduate School Adjudication Committee's statement of recommendations.

The Dean of the Graduate School shall file the record of the matter consisting of all written communications, all written evidence, an audiotape or other record of the hearing, and statements of recommendations to the Dean of the Graduate School, in the confidential file located in and maintained by the Graduate School. The student shall have access to this file.

University Sanctions. If the sanction(s) imposed at the Graduate School level include implementation or recommended implementation of University sanctions (as listed in Consultative Resolution Step 2.6), implementation or recommended implementation of those sanctions shall be initiated within 10 academic days[1] following the Dean of the Graduate School's decision in the matter.

No Right to Further Appeal. The decision of the Dean of the Graduate School is final, and no further appeal is available.

Note:

[1] Academic days are defined as weekdays when classes are in session, not including the summer sessions.

Appendix A: Departmental Adjudication Committee Membership

The department chair or the chair of the departmental adjudication committee shall assemble, from a pool of individuals comprising the departmental Academic Integrity Pool, a Departmental Adjudication Committee comprised of no fewer than two faculty members and two graduate students or a larger number of participants maintaining this same ratio. The departmental Academic Integrity Pool shall be selected by the respective faculty and student constituencies in an appropriate democratic fashion, and in no case shall these representatives be appointed by the departmental or decanal administration. If deemed appropriate, the Departmental Academic Integrity Pool may also serve as the Departmental Grievance Pool.

The members of the Academic Integrity Pool and the Adjudication Committee shall be selected so that no member is involved in a disproportionate number of cases. Each principal to the dispute shall have the option of requesting, without stipulating a reason, the replacement of one member of the Committee appointed to hear the case. If any principal finds the replacement member inappropriate, the party shall transmit, within five academic days[1] of the naming of the committee, a written statement of the grounds for this "challenge for cause" to the cognizant department chair who shall rule on the merits and either retain or replace the committee member so challenged. Each committee member selected shall have the option of disqualifying him/herself from the Committee by stipulating reasons why he or she feels unable to deal with the case in an unbiased fashion.

Appendix B: Confidentiality of Proceedings.

Once the department chair, college or school dean or the Dean of the Graduate School initiates an academic integrity hearing, principals and committee members shall have the obligation to maintain the confidentiality of the proceedings and of all materials or testimony presented in hearing proceedings, until a decision is formally transmitted to the principals involved in the case.

If a breach of confidentiality by either principal (as defined above) is formally brought to the attention of the Adjudication Committee, upon a majority vote of the committee, it may choose to consider this breach a case of possible misconduct. If a committee member is charged with a possible misconduct, such charge will be heard at the next highest level Adjudication Committee. Such consideration shall take precedence over the pending case, and a misconduct hearing shall be conducted, and findings shall be transmitted, in writing, to the principals and committee members, and shall be placed in a supplemental file of the case proceedings. Such findings may then be considered in the subsequent review of the case.

Appendix C: Decanal Adjudication Committee Membership

The cognizant college or school dean, or the chair of the school or college Adjudication Committee, shall assemble, from a pool of individuals comprising the college or school Academic Integrity Pool, a Decanal Adjudication Committee comprised of no fewer than two faculty members and two graduate students or a larger number of participants maintaining this same ratio. In those college/schools comprised of multiple academic departments, the Decanal Adjudication Committee shall not include representatives from the department(s) involved in the case. The college or school Academic Integrity Pool shall include two representatives, as appropriate, from each department: one faculty member and one graduate student. The departmental representatives in the Academic Integrity Pool shall be selected by the respective faculty and student constituencies in an appropriate democratic fashion, and in no case shall these representatives be appointed by the departmental or decanal administration. If deemed appropriate, the Decanal Academic Integrity Pool may also serve as the Decanal Grievance Pool.

The members of the Academic Integrity Pool and the Adjudication Committee shall be selected so that no member is involved in a disproportionate number of cases. Each principal to the dispute shall have the option of requesting, without stipulating a reason, the replacement of one member of the Committee appointed to hear the case. If any principal finds the replacement member inappropriate, the party shall transmit, within five academic days[1] of the naming of the committee, a written statement of the grounds for this "challenge for cause" to the cognizant academic dean who shall rule on its merits and either retain or replace the committee member so challenged. Each committee member selected shall have the option of disqualifying him/herself from the Committee by stipulating reasons why he or she feels unable to deal with the case in an unbiased fashion.

Appendix D: Graduate School Adjudication Committee Membership

The Graduate School Adjudication Committee shall be comprised of no fewer than two faculty members and two graduate students (all from outside the cognizant academic department[s]) or a larger number of participants maintaining this same ratio. The departmental representatives comprising the Graduate School Academic Integrity Pool shall be selected by the respective faculty and student constituencies in an appropriate democratic fashion, and in no case shall these representatives be appointed by the departmental or decanal administration. If deemed appropriate, the Graduate School Academic Integrity Pool may also serve as the Graduate School Grievance Pool.

The members of the Graduate School Academic Integrity Pool and the Graduate School Adjudication Committee shall be selected so that no member is involved in a disproportionate number of cases. Each principal to the dispute shall have the option of requesting, without stipulating a reason, the replacement of one member of the

committee appointed to hear the case. If any principal finds the replacement member inappropriate, the party shall transmit, within five academic days[1] of the naming of the committee, a written statement of the grounds for this "challenge for cause" to the Dean of the Graduate School who shall rule on its merits and either retain or replace the committee member so challenged. Each committee member selected shall have the option of disqualifying him/herself from the committee by stipulating reasons why he or she feels unable to deal with the case in an unbiased fashion.

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