

**Department of
Pharmacology and Toxicology
School of Medicine & Biomedical Science**

**B.S. Program
Student Handbook
2012**

**Margarita L. Dubocovich Ph.D.
Professor of Pharmacology and Toxicology
Chair of Pharmacology and Toxicology
Senior Associate Dean of Inclusion and Cultural Enhancement**

**James Olson Ph.D.
Professor of Pharmacology and Toxicology
Director of Undergraduate Program in Pharmacology and Toxicology
Director of Environmental Health Sciences Division (SPHHP)**

<http://medicine.buffalo.edu/pharmtox>

Table of Contents

	Page
Introduction	3
a. History of Program	
b. Goals and Objectives of Program	
Academic Advisement	4
Administration of Undergraduate Program	4
Admission to Program	4
Curriculum	6
a. Recommended sequence of Program Requirements	7
b. Course Descriptions	8
c. PMY 409 Experimental Pharmacology	
1. General Instructions	10
2. Laboratory Safety	11
Undergraduate Research Opportunities	12
Contact Information for Undergraduate Research Fellowships	14
Graduation and Commencement	17
Finish in 4	18
Accessibility Resources	19
Commitment to Equal Opportunity	
FERPA: Family Education Rights and Privacy Act	
The Center for Academic Development Services (CADS)	
University Libraries	
Student Responsibility Statement	20
Academic Standards Review: good standing, warning, probation, dismissal	
University policy on academic integrity	21
Constructive resolution procedural steps / appeals / sanctions	23
University undergraduate student policy on grievance procedure	23
University policy and procedures for leave of absence	24
University policies and procedures for withdrawal from classes and tuition responsibility	24
Awards and honors	25
Student Accessed Advisement Tools: UB HUB	25
University advisement and counseling opportunities	26
Career Services	26
Counseling Services	26
Health Services	27
Campus Ministries Association	27
Student associations and activities	
a. Pharmacology and Toxicology Club	27
b. University Student Activities	28

INTRODUCTION

What Is Pharmacology and Toxicology?

Pharmacology is often confused with pharmacy, but they are separate professions. Pharmacology is a research-oriented biomedical scientific discipline, where pharmacy is concerned with the preparation, dispensing and use of medications in health care.

Pharmacology is the science concerned with understanding the interactions of chemical substances, such as drugs, with living systems. Pharmacology can be divided into pharmacokinetics, which is the study of what the body does to the drug, pharmacodynamics, which is the study of the effects of drugs on the body, and pharmacogenomics/pharmacogenetics which is the study of the influence of genetic variation on drug response. Toxicology as a science explores the adverse effects of chemical, physical or biological agents on living organisms and the ecosystem, including the prevention and amelioration of such adverse effects. The combined disciplines of pharmacology and toxicology have similar basic principles and often utilize similar experimental methods and approaches to address a wide range of biomedical and health related questions. Pharmacology and Toxicology are sciences that are basic not only to medicine, but also to pharmacy, nursing, dentistry, public health and veterinary medicine. Our discipline interacts with many other fields—physiology, biochemistry, immunology, psychology, microbiology, chemistry and medicine, to name only a few.

Brief History of the Program

The BS program in Pharmacology and Toxicology (PMY) at the University at Buffalo was conceived about 35 years ago in the former Department of Biochemical Pharmacology in the School of Pharmacy and Pharmaceutical Sciences (SPPS). In July, 2000, the Department of Biochemical Pharmacology with its faculty, programs and courses were merged with the Department of Pharmacology and Toxicology in the School of Medicine and Biomedical Sciences.

Goals and Objectives

The overall goal of the B.S. program in Pharmacology and Toxicology is to prepare students with a comprehensive understanding of the principles and applications of pharmacokinetics, pharmacodynamics, pharmacogenomics/pharmacogenetics, and toxicology as it relates to cells, tissues and organisms. This training provides students with an array of career opportunities including advanced study in either graduate or professional schools or for careers in technical, production/analytical, product safety or sales as research scientists and/or drug information specialists. Exceptional students in the B.S. program can apply for the combined BS/MS degree in Pharmacology and Toxicology during their Junior year. The BS/MS dual degree program is described in <http://medicine.buffalo.edu/departments/pharmtox/education/dual-degree.html>.

Majors in our program are expected to master both the conceptual and practical aspects of pharmacology and toxicology, as well as fundamental laboratory techniques used in assessing drug action. In addition, students are encouraged to gain first-hand experience in laboratory research under the direction of faculty. There is flexibility in elective selections, so that students may also design their degree programs to suit their interests and particular career goals. While pharmacology and toxicology are most often considered to be advanced degree programs with courses limited to graduate and professional students, we believe that instruction in biochemistry, physiology, pharmacology and toxicology provides an undergraduate education that uniquely prepares our majors for direct entry into career positions, as well as for success in graduate, and / or professional

schools. Since several of our required courses are also prerequisites for the PharmD program at the University at Buffalo, the B.S. degree program also provides a strong preparation for students looking towards admission to pharmacy school either at UB or other institutions.

Academic advisement

Dr. James Olson, Director of Undergraduate Studies, and other departmental faculty are available to advise students about careers in the field of Pharmacology and Toxicology and opportunities for post-baccalaureate education. Dr. Olson is available by email (jolson@buffalo.edu) to schedule an appointment for discussing the academic program and/or career, graduate school, or professional school advisement. The undergraduate assistant (Ms. Linda LeRoy) (pmyugrad@buffalo.edu), is available to assist with the application process, course options and requirements, course registration, degree conferral, and maintains files for applicants and students enrolled in the program.

Administration of the Undergraduate Program

The activities of the Pharmacology and Toxicology B.S. Program are administered by the Departmental Education Committee (Dr. Dubocovich, Chair). Professor James Olson is the Director of the undergraduate program and Chair of the Undergraduate Programs Subcommittee (UPS). The Undergraduate Programs Subcommittee is responsible for the operation of the B.S. Program and sets its policies and procedures. Oversight and planning of undergraduate research for students in the Program is by the Undergraduate Research & Summer Programs Subcommittee (URSPS)(Chair, Dr. Rajendram (Raj) Rajnarayanan). This subcommittee assists students with identifying and matching to suitable research opportunities both in the department and throughout the University. At the School level, the Pharmacology & Toxicology Program is under the purview of the Assistant Dean for Undergraduate Education in Biomedical Sciences (Dr. David Shubert). Dr. Suzanne Laychock, Senior Associate Dean for Undergraduate Education, Faculty Affairs & Facilities, oversees the Office of the Assistant Dean and answers to the Dean of Medicine (Dr. Michael Cain).

Admission to Program

Overview: The Program in Pharmacology and Toxicology is an undergraduate program leading to a Bachelors of Science degree. Students must be matriculated students (accepted by the UB Office of Admissions) prior to acceptance by the Pharmacology and Toxicology Program. Students are reviewed for acceptance into the Program after approximately two years (approximately 60 semester hours of college level work), either at UB or in transfer colleges. During these first two years a student will complete the prerequisites for the Program and most of the University's General Education Program. Only the most academically qualified students will be accepted into the program each year; in recent years, this has been between 30-40 students.

Advisement prior to acceptance into Program

Students may contact Dr. James Olson (jolson@buffalo.edu), Undergraduate Program Director, during their freshman/sophomore years to learn more about the subject, the opportunities that are available in the program and the relevance of these opportunities to students' academic and career aspirations. Information regarding procedural details of admission can be obtained by contacting the PMY Undergraduate Assistant (Ms. Linda LeRoy) (pmyugrad@buffalo.edu or 716-829-2800), or Ms. Kelli Hickey, Senior Academic Advisor for Biomedical Undergraduate Education (khickey@buffalo.edu or 716-829-3005).

Transfer Policy

Transfer students should obtain admission to the university through the Office of Admissions before applying to the Department of Pharmacology and Toxicology. Students must complete their university application (which includes sending official transcripts of the fall semester work) prior to February 14. The UB Taurus website identifies transfer courses which are articulated and approved as "course content equivalent". If a student has courses which are not articulated on the UB Taurus website, it is the responsibility of the student to provide information for review (syllabus, textbook, description, etc).

Acceptance Criteria

As part of the application review process the Admissions Committee will review the applicant's prerequisite science and math GPA, entire transcript (including non-UB courses), research experience and other application materials. Applicants must have a minimum prerequisite GPA of 2.5 to be considered, but this does not guarantee acceptance into the program. The program is very competitive as the department receives about 50-80 applications and enrolls about 35-40 per year. The fall 2011 incoming class had an average prerequisite GPA of 3.316.

Application Deadline

The department encourages students to apply by February 14th of their sophomore year. Students can obtain an application on the department website at:

<http://medicine.buffalo.edu/departments/pharmtox/education/undergraduate/application.html>

The department strongly encourages all applicants to complete all prerequisite courses and general education requirements before they apply to the BS degree program. It is understood that students will be completing these requirements during the spring semester of their sophomore year. As a result, some students may gain provisional acceptance into the program contingent upon satisfactory completion of prerequisite courses during the spring and/or summer session.

Prerequisite Courses

BIO 200 Evolutionary Biology

BIO 201 Cell Biology

CHE 101 General Chemistry or CHE 105 Chemistry: Principles and Applications

CHE 102 General Chemistry or CHE 106 Chemistry: Principles and Applications

CHE 201 Organic Chemistry

CHE 202 Organic Chemistry

MTH 121 Survey of Calculus and Its Applications I or MTH 141 College Calculus I

MTH 122 Survey of Calculus and Its Applications II or MTH 142 College Calculus II

PHY 101/PHY 151 College Physics I/Lab* or PHY 107 General Physics I

PHY 102/PHY 152 College Physics II/Lab* or PHY 108/PHY 158 General Physics II/Lab*

*Only one semester of Physics Lab is required

Curriculum

Degree Requirements (prerequisite and required courses within program)

A summary of information regarding the program, together with program requirements and links to other on-line materials, can be found at

<http://medicine.buffalo.edu/departments/pharmtox/education/undergraduate.html>

Prerequisite Courses (years 1 and 2)

Course #	Course Name	Credit Hrs.
BIO 200	Evolutionary Biology	5
BIO 201	Cell Biology	4
CHE 101	General Chemistry I + lab	5
CHE 102	General Chemistry II + lab	5
CHE 201	Organic Chemistry I + lab	5
CHE 202	Organic Chemistry II + lab	5
MTH 121	Survey of Calculus and Its Applications I	4
MTH 122	Survey of Calculus and Its Applications II	4
PHY 101/151 & 102/152	College Physics I/II, 2 x 4cr, with 1 lab required	9
Or, PHY 107/108/158	General Physics either I/II/Lab* 2 x 4cr + only 1 lab required	or (9)
	Total Credit Hours	46

Required Courses (years 3 and 4)

Course #	Course Name	Credit Hrs.
BCH 403	Principles of Biochemistry	4
PMY 311	Chemistry of Drug Action	3
BIO 302	Introduction to Molecular Biology	3
PGY 451	Human Physiology I	3
PGY 452	Human Physiology II	3
PMY 409	Experimental Pharmacology	4
PMY 405	Principles of Pharmacology I	4
PMY 406	Principles of Pharmacology II	4
PMY 455	Toxicology Fundamentals	2
	Total Credit Hours	30*

*An additional 13-23 credits of science electives are also required.

A minimum of 120 credit hours, including general education requirements, are required for graduation.

Recommended Sequence of Program Requirements

FIRST YEAR

Fall BIO 200; CHE 101 or CHE 105; MTH 121 or MTH 141

Spring BIO 201; CHE 102 or CHE 106; MTH 122 or MTH 142

SECOND YEAR

Fall CHE 201; PHY 101/PHY 151* or PHY 107

Spring CHE 202; PHY 102/PHY 152* or PHY 108/PHY 158*

THIRD YEAR

Fall BCH 403, PGY 451, science electives**

Spring PGY 452, PMY 311, PMY 409, science electives**

FOURTH YEAR

Fall PMY 405, PMY 455, BIO 302, science electives**

Spring PMY 406, science electives**

***Only one (1) physics lab is required.**

****13-23 credit hours of science electives are required; STA 119 Statistical Methods or PSY 207 Psychological Statistics is strongly recommended.**

Electives and Course Groupings

Students may choose from the following science electives:

ANA 113 Anatomy

APY 107 Introduction to Physical Anthropology

APY 275 Introduction to Medical Anthropology

APY 276 Introduction to Ethnomedicine

BIO 319 Genetics

BIO 328 General Physiology

BIO 401 Advanced Biological Chemistry

BIO 461 Basic Radiation Science

BIO 468 Molecular Immunology

BPH 303 Principles of Biophysics

CHE 214 Analytical Chemistry

CHE 312 Chemistry of Biological Systems

CHE 349 Physical Chemistry for Life Sciences

CSE 101 Computers A General Introduction MIC 301 Fundamentals of Microbiology

MIC 401 General Microbiology

MIC 412 Fundamentals of Immunology

MT 402 Fundamentals of Immunology

MT 428 Forensic Science

NTR 108 Human Nutrition

NTR 401 Nutrition and Health

PGY 405 Cell Physiology

PGY 412 Applied Physiology
PHI 337 Social and Ethical Values in Medicine
PMY 498 Undergraduate Research
PSY 207 Psychological Statistics
STA 119 Statistical Methods

Pharmacology and Toxicology: Course Descriptions

PMY 311 Chemistry of Drug Action

Credits: 3

Semester(s): Spring

Type: LEC

Grading: Graded (A-F)

Introduces students to: 1. Basic pharmacology principles involving pharmacodynamic and pharmacokinetic; and 2. How the chemical structure of a drug and its physiochemical properties determine its molecular mechanism of action and the body's response and handling of the drug

PMY 405 Principles of Pharmacology

Credits: 4

Semester(s): Fall

Type: LR

Grading: Graded (A-F)

Explores principles of drug action on biological systems, action mechanism of each agent class on specific organ systems, a review and extension of pertinent physiologic concepts of that system, chemical structure-drug activity relationships, sites of action, metabolic patterns of principal drugs, and therapeutic and toxicologic aspects. Dual-listed with [PMY 511](#).

PMY 406 Principles of Pharmacology

Credits: 4

Semester(s): Spring

Type: LR

Grading: Graded (A-F)

Explores principles of drug action on biological systems, action mechanism of each agent class on specific organ systems, a review and extension of pertinent physiologic concepts of that system, chemical structure-drug activity relationships, sites of action, metabolic patterns of principal drugs, and therapeutic and toxicologic aspects. Dual-listed with [PMY 512](#).

PMY 455 Toxicology Fundamentals

Credits: 2

Semester(s): Fall

Type: LEC

Grading: Graded (A-F)

Introduces students to the basic principles of toxicology. Toxicology is defined as the study of adverse effects of natural compounds or manmade chemicals on living organisms. Specific areas covered will include: the history of toxicology, general principles, chemical carcinogenesis, specific organ toxicology and ways to determine the risk to humans associated with toxic compounds. Uses

innovative approaches to teach toxicology by utilizing real life examples and historical information of mass poisonings from natural or environmental disasters. Introduces the student to general principles and practices of toxicology.

PMY 498 Undergraduate Research Participation in Pharmacology and Toxicology

Credits: 1 - 12

Semester(s): Fall, Spring, Summer

Type: TUT

Grading: Graded (A-F)

Direct involvement in original research involving a literature search and laboratory work.

PMY 499 Independent Study

Credits: 1 - 8

Semester(s): Fall, Spring, Summer

Type: TUT

Grading: Graded (A-F)

Involves a literature search and library work on a current topic in pharmacology or toxicology.

Includes interdisciplinary projects, such as analyses of trends in drug use, toxicological projects, and applied clinical aspects.

PMY 409 Experimental Pharmacology (Offered for PMY Majors Only)

Credits: 4

Semester(s): Spring

Type: LBR

Grading: Graded (A-F)

PMY students only Applies principles of pharmacology and toxicology in a lab course, which includes *in vivo* and *in vitro* techniques, including: assessing the duration of drug action in a rat model, preparing subcellular fractions of liver, quantifying total protein, cytochrome P450 (CYP) protein content and activity, CYP2B1/2 protein and mRNA levels, biochemical and morphological assessment of liver injury, training in the proper care and use of lab animals and radiation safety. The course will provide the students with basic laboratory techniques commonly utilized in research and experience with writing two detailed lab reports which follow the format used in scientific journals.

PMY 409 - GENERAL INSTRUCTIONS

1. Read the experiment carefully before coming to the laboratory.
2. Discuss the experimental protocol with your lab group prior to each lab. Assign the responsibilities for each of the procedures to be followed, such as marking of the animals, weighing them, recording the data etc. Good organization will not only expedite the performance of an experiment but often improve the quality of the data generated during the lab.
3. Record written observations and raw data in a lab notebook, marked with the date of each lab.
4. Each group will clean their laboratory work space before leaving the laboratory at the end of the experiment.
5. Deliberate cruelty to animals will not be tolerated. Offenders will be dismissed from the laboratory and possibly from the course.
6. At the end of an experiment the animals, and dirty needles and syringes are disposed of by special procedures. Instructions will be given during the first laboratory session.
7. Two of the laboratory experiments require working with animals, which will bite if not handled correctly. If you are bitten, it is your responsibility to obtain a tetanus booster vaccination unless you know that you have had one in the last 10 years.
8. Allergies and other sensitivities to laboratory animals can occur. If you are, or become allergic or sensitive to the animals, it is your responsibility to take protective measures and/or whatever other measures may be necessary to alleviate the condition.
9. Please follow the instructions for lab reports carefully.
10. Plagiarism is not allowed. If you quote a source, place quotation marks appropriately and cite the source. While you work with a lab group and collect data together, it is expected that the written lab report will be your own work.
11. Attendance at all laboratory sessions is required. Absence from one or more laboratories may result in a grade of Incomplete, at the discretion of the course director. Because of the large amount of preparation for each laboratory, there will be no substitute or repeat laboratories. Incompletes may be removed in the course the following year. Students are considered absent if they are more than 30 min late for a laboratory.
12. Lab reports should be neatly typed.
13. All lab instructors are routinely available for assistance. It is advisable to make an appointment for any major assistance or advisement.

Laboratory Safety Precautions for PMY 409 Experimental Pharmacology

In this laboratory, you will be handling animals and isolating tissues. You will be required to attend the Laboratory Animal Facility (LAF) training for proper handling of these animals, specifically, rats. We will follow the LAF regulations for the handling of rats at all times. The specimens collected are not considered to be clinically significant but may be potentially infectious; hence the following procedures will be followed:

1. In the event of an accident, the involved individual should immediately report the event to the instructor and/or the responsible supervisor.
2. Universal Precautions will be practiced at all times in the laboratory when handling and working with specimens and reagents of any type.
3. Personal Protective Equipment will be used at all times when working with any specimen or hazardous reagent.
4. Gloves approved for the handling biological specimens will be worn.
5. Approved eye protection will be worn, face shields or safety glasses , when the possibility of aerosols or splashes may occur to the nose, mouth, ears or eyes.
6. Other environmental barriers as appropriate (fume hoods, workbench shields, polymer backed adsorbent paper, etc) will be used as required to maintain a safe environment.
7. Laboratory waste will be disposed in a manner approved by the University at Buffalo, in compliance with local, state and federal regulations and laws.
8. Work areas will be decontaminated at the completion of laboratory tasks using a dilute Lysol solution provided to you in lab.
9. Proper hand washing will be performed immediately after removal of gloves, prior to leaving the laboratory and additionally as required to prevent potential transmission to coworkers or yourself.
10. Students may refer to Material Safety Data Sheets to be assured of the proper and safe use of all laboratory reagents.
11. Students will follow Standard Operating Procedures for all laboratory tasks as stated in each experiment.

Undergraduate Research Opportunities

<http://medicine.buffalo.edu/departments/pharmtox/education/undergraduate/research.html>

Conducting lab research as an undergraduate lays the groundwork for a successful career in pharmacology and toxicology, neuroscience and related fields in the biomedical sciences. Our majors get hands-on research experience in [PMY 409](#) (Experimental Pharmacology), a requirement for the BS. We also offer lab research experience to majors and interested non-majors with appropriate backgrounds via [PMY 498](#) (Undergraduate Research Participation in Pharmacology and Toxicology).

Many of our faculty work with students from university-wide programs, including:

- [Center for Undergraduate Research & Creative Activities \(CURCA\)](#)
- [Collegiate Science and Technology Entry Program \(CSTEP\)](#)

Jump-Start Your Research Career

As a student researcher, you will work in our labs at the cutting edge of pharmacology and toxicology research to gain insight and expertise on every part of the research process. You will take on a focused project and, under a mentor's guidance, build on the skills and concepts from your coursework to generate independent, high-quality data.

We encourage our students to make significant intellectual contributions to their labs. Many of our students stay with a lab two to three years, carrying out longer-term projects and getting their names on publications in prominent journals. This makes your CV very competitive for applications to graduate school, MD and PharmD programs, and other pursuits.

Present Your Research

Very often, students produce posters based on their research. You may present your work at the [Upstate New York Pharmacology Society Annual Meeting](#) and at the university's [Celebration of Academic Excellence](#), where our students not only consistently present but win prestigious awards. The student with the best poster at the Upstate New York Pharmacology Society Annual Meeting wins an all-expenses-paid trip to present at the annual meeting of the [American Society for Pharmacology and Experimental Therapeutics](#) or [Society of Toxicology](#).

Gain Practical Lab Experience

Participating in lab meetings gives you insight into life in a research lab and connects you to fellow researchers, from other undergraduates through senior faculty members. In your lab you can gain a wide range of skills in techniques and data analysis, including:

- high-performance liquid chromatography
- mass spectrometry
- nuclear magnetic resonance
- microscopy
- protein analysis
- receptor binding
- behavioral analysis
- statistical analysis
- research ethics

Find a Research Opportunity

You may find a research mentor through several avenues:

Search for Faculty

Our searchable faculty profiles describe faculty research interests and ongoing projects:

[Pharmacology and Toxicology Faculty Profiles](#)

Zannoni Summer Undergraduate Research Fellowship from ASPET (American Society for Pharmacology and Experimental Therapeutics)

This 8-10 week Summer program gives you a chance to perform mentored research in Pharmacology and Toxicology with Professors in the Department of Pharmacology and Toxicology (SMBS), or the Department of Pharmaceutical Science (SPPS), and to explore graduate careers. For further information contact: eam6@buffalo.edu.

CLIMB UP (Collaborative Learning and Integrated Mentoring in the Bioscience Undergraduate Program)

This 8 week program gives you a chance to perform mentored research in the biosciences and explore graduate careers.

[CLIMB UP for Summer Research](#)

Welcome Day

Every fall semester, our faculty brief majors about the undergraduate curriculum and research opportunities for the coming academic year.

Pharmacology and Toxicology Club

This [student-run group](#) hosts faculty presentations throughout the year.

Research Opportunity Listings

Faculty who are actively seeking student researchers list their projects in [CURCA](#). CURCA also maintains a listing of summer and national research opportunities.

- [CURCA's Research Opportunity Database](#)
- [National or Summer Research Opportunities](#)

Collegiate Science and Technology Entry Program (CSTEP)

Students participating in [CSTEP](#) can find lab mentors in the biomedical sciences.

- [CSTEP Summer Research Internship Program](#)

Ask Your Professors

Talk to faculty whose science classes you have taken. They may be able to suggest other faculty with whom you might work.

Student Clubs

Student organizations host speakers, facilitate shadowing opportunities and connect you with peers who share your interests—all of which may help you find a project mentor.

- [1/4/12 Undergraduate Student Clubs](#)

Applying and Registering

Although we have no formal prerequisites, our research opportunities are selective. Faculty prefer students with some knowledge in fields such as medicinal chemistry, organic chemistry and statistics, but previous lab experience is not necessary. Course credit requires you to work three hours per week in the lab for every hour of credit you earn—so a three-hour class means making a commitment of nine hours per week.

Fill out our [application](#) and attach a CV and a description of your interest in research. Specify any topics you especially want to pursue or any faculty with whom you want to work.

Once we review your application, you will meet with [Rajendram Rajnarayanan, PhD](#), director of undergraduate research and summer programs, and discuss how research in our labs fits with your long-term goals and your commitment to academic success. If you're accepted, he will match you with a suitable lab.

You may take [PMY 498](#) for three credit hours per semester and repeat it for a total of nine hours. Non-majors may earn course credit via independent study in our department or their home department, or make other arrangements.

Apply Now

[Apply for Undergraduate Research](#)

Register

Once you have been matched with an instructor for undergraduate research, please complete this form located at

<http://medicine.buffalo.edu/departments/pharmtox/education/undergraduate/research.html>

and return it to our office:

Contact Us

If you have questions about our undergraduate research opportunities in pharmacology and toxicology, please contact:

[Rajendram V. Rajnarayanan, PhD](#)

Director of Undergraduate Research and Summer Programs

Pharmacology and Toxicology

111 Farber Hall, University at Buffalo, Buffalo, NY 14214

Phone: (716) 829 2130 FREE (716) 829 2130 ; Fax: (716) 829-2801

Email: rajendra@buffalo.edu

Contact Information for Undergraduate Research Fellowships

- I. Federal
 - A. National Institutes of Health
 1. National Institutes of Health Undergraduate Scholarship Program
<http://ugsp.info.nih.gov/default.htm>
 2. National Institutes of Health Summer Internship Program in Biomedical Research
<http://www.training.nih.gov/student/internship/internship.asp>
 3. NIH: Research Training Opportunities for Minorities
http://www4.od.nih.gov/research/general_sup.htm
 - B. National Science Foundation
 1. NSF Research Experience for Undergraduates
<http://www.nsf.gov/home/crssprgm/reu/start.htm>
 2. NSF Undergraduate Mentoring in Environmental Biology
<http://www.nsf.gov/pubs/2002/nsf02066/nsf02066.html>
 3. NSF: International Research Experience for Students (IRES)
<http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf04036>
 - C. Other Federal
 1. Department of Energy Science Undergraduate Laboratory Internships
<http://www.scied.science.doe.gov/scied/ERULF/about.html>
 2. NIST Summer Undergraduate Research Fellowship
<http://www.surf.nist.gov/surf2.htm>
 3. NOAA Great Lakes Summer Student Fellowship
<http://www.glerl.noaa.gov/pr/ssfp/cur>
 4. NOAA Great Lakes Oceanography
<http://www.glerl.noaa.gov/seagrant/MuskegonClassFlyer2004.pdf>
- II. Private
 - A. National Conferences for Undergraduate Research (NCUR) Summer Support for Exceptional Undergraduates
<http://www.ncur.org/lancy/announce.htm>
 - B. Henry Luce Foundation Clare Boothe Luce Scholarships in Science and Engineering
<http://www.hluce.org/4cbldefm.html>
 - C. American Society for Microbiology (ASM) Undergraduate Research Fellowship
<http://fundingopps.cos.com/cgi-bin/getRec?id=66725>
 - D. German Academic Exchange Service (DAAD) German Studies Research Grant
<http://fundingopps.cos.com/cgi-bin/getRec?id=23622>
 - E. American Academy of Audiology Student Summer Research Fellowship
<http://fundingopps.cos.com/cgi-bin/getRec?id=73458>
 - F. American Foundation for Aging Research (AFAR) Research Grants/Fellowships
<http://fundingopps.cos.com/cgi-bin/getRec?id=80199>
 - G. Cystic Fibrosis Foundation (CFF) Student Traineeships
<http://fundingopps.cos.com/cgi-bin/getRec?id=1613>
 - H. Office of Biological and Environmental Research Global Change Education Program
<http://fundingopps.cos.com/cgi-bin/getRec?id=26668>
 - I. Motorola Foundation Grants
<http://fundingopps.cos.com/cgi-bin/getRec?id=57099>

J. Roswell Park Cancer Institute Summer Research Participation Program in Science

<http://fundingopps.cos.com/cgi-bin/getRec?id=46462>

K. AGA Student Fellowship Research Awards

<http://www.fdn.org/html/pdf/descriptions/StudentResearchFellowshipAwardDescription.pdf>

L. University of Delaware's Graduate College of Marine Studies: Marine Sciences Summer Internship

<http://www.ocean.udel.edu/graduate/reu.html?CFID=85918&CFTOKEN=13202173>

M. Northwestern University: Materials Research Experience for Minority Undergraduates (MRI)

http://mrceemis.ms.nwu.edu/mrsec/education/edu_mri.htm?CFID=85918&CFTOKEN=13202173

N. Harry S. Truman Library Undergraduate Student Grant

<http://www.trumanlibrary.org/grants>

O. Sigma Xi: Grants-in-Aid of Research program

<http://www.sigmaxi.org/programs/giar/index.shtml>

P. University of Iowa Neurobiology summer research

Q. University of Utah summer research

R. Pharmaceutical Tech summer research

S. Cornell Center for Materials Research: Summer Research Program

<http://www.ccmr.cornell.edu/education/reu/>

T. Society of Toxicology

<http://www.toxicology.org/ai/eo/sri.asp>

III. University at Buffalo

A. Honors Program - Research and Creative Activities Fund

<http://wings.buffalo.edu/provost/honors/researchgrant.pdf>

B. Ronald E. McNair Post-Baccalaureate Achievement Program

<http://wings.buffalo.edu/vpaa/mcnair/summary.htm>

C. Community Linked Interdisciplinary Research (CLIR)

<http://www.clir.buffalo.edu/>

IV. Links to other Campuses

A. Council on Undergraduate Research

<http://www.cur.org>

B. Stony Brook

<http://ws.cc.stonybrook.edu/Reinventioncenter>

C. Cornell University

<http://www.research.cornell.edu/undergrad/>

D. University of Delaware

<http://www.udel.edu/UR/index.html>

E. University of Florida

<http://nersp.nerdc.ufl.edu/~honors>

F. University of Washington

<http://www.washington.edu/research/urp/index.html>

Graduation

Students must meet the following criteria in order to have degrees conferred:

Application for Degree

Students must apply for graduation via their HUB Student Center prior to the published deadline dates listed below:

- **June 1 graduation:** February 15
- **September 1 graduation:** June 15
- **February 1 graduation:** September 1

Students are encouraged to apply for their degree well before the deadline dates. Applications attempted after the published deadlines will be applied to the next available conferral date. Students who will be receiving two degrees (BA & BS, BS & BFA, etc.) and students in a combined degree program must apply for both degrees at the same time.

A final evaluation of general education and university degree requirements will be completed by a degree auditor in the Office of the Registrar. Each academic department determines if academic major requirements have been met. All university, major, minor, concentration and certificate (if applicable) requirements must be satisfied on the [HUB Academic Advisement Report](#) prior to degree conferral.

Students who find that they are not eligible to graduate on their applied degree conferral date must complete and submit [Graduation Information Change Form: Multiple Major or Minor/Change Date](#) (PDF) to inform the Office of the Registrar in writing of their new degree conferral date.

When a degree is conferred, it is noted on the student's academic record (transcript) and diploma. Diplomas are mailed to the permanent address listed on HUB within six weeks after the conferral date. Students should make certain that the university has their correct permanent address. To check or update student address information, students should refer to their HUB Student Center (via [MyUB](#)).

Grades will not be changed after degree conferral except when errors in the transcript occur.

Transcripts of Transfer Coursework

All final transcripts for transfer credit must be received by the Office of the Registrar by the following dates:

- June 1 graduation: May 10
- September 1 graduation: August 10
- February 1 graduation: January 10

University at Buffalo Academic Records:

An "academic transcript" is an official, permanent academic record of all credit-bearing coursework with grades (grade earned, resigned, withdrawn) that a student attempts or completes at the University at Buffalo, as well as any degree(s) conferred. The University at Buffalo Office of the Registrar/Student Academic Records and Financial Services is responsible for maintaining academic records for all students in the undergraduate and graduate divisions at UB. Transcripts (official and student) are available only through the UB Office of the Registrar/Student Academic Records and

Financial Services. Information is available in person at their main office, 232 Capen Hall, UB North Campus. <http://registrar.buffalo.edu/>

Settlement of Obligations

All tuition, fees, late charges, and fines must be paid in order to receive diplomas or transcript services, including information about the student's program completion in any form. The Office of the Registrar will hold diplomas for graduates with financial service indicators on their records and diplomas returned due to incorrect addresses for one year after the degree conferral date. After that, the diploma will be destroyed and the student will need to order and pay for a replacement diploma.

Commencement

Formal commencement exercises are held each May. All students who have graduated the previous September or February, as well as students who have applied for June degree conferral, are eligible to participate in the ceremonies. Information regarding commencement activities is available from the [Countdown to Commencement website](#).

Graduation Rates

The four-year graduation rate of undergraduate students at the University at Buffalo approximates that of other major public research universities. Consistent with national trends, a number of University at Buffalo undergraduate students extend their graduation date to five years.

Finish in 4

Finish in 4, a four year graduation pledge, is the University at Buffalo's commitment to enhance the undergraduate experience and create the robust, supportive environment in which students may obtain a rich educational experience and timely graduation.

Finish in 4 is a roadmap featuring important requirements for completing a bachelor's degree in four years. It includes:

- communications that delineate academic responsibilities and obligations
- what courses students need to take and when
- what grades and other requirements must be met
- advising resources available to students
- where to go for help with the program
- electronic tools available to students to review progress
- assurances that UB will help students to complete their degrees in 4 years

If a student does all that is required in Finish in 4 and cannot graduate in 4 years, the university will offer him or her the opportunity to register for the UB courses needed free of tuition and comprehensive fee charges.

All undergraduate majors are eligible except those that include a graduate or advanced professional degree component such as: Doctor of Physical Therapy (DPT), Doctor of Pharmacy Degree (PharmD), Occupational Therapy (OT), BS/MS, BA/MA, BS/DDS, or Double Degrees such as a BA and BS.

More information about Finish in 4 is available at <http://advising.buffalo.edu/fif>.

Accessibility Resources

The University at Buffalo is committed to equality of opportunity for persons with disabilities to participate in and benefit from all of its programs, services, and activities. To that end, UB makes reasonable accommodations through the coordination and advocacy of Accessibility Resources. For further information, please visit [Accessibility Resources' website](#)

Commitment to Equal Opportunity

Pursuant to University policy, the University at Buffalo is committed to ensuring equal employment, educational opportunity, and equal access to services, programs, and activities without regard to an individual's race, color, national origin, sex, religion, age, disability, gender, pregnancy, gender identity, sexual orientation, predisposing genetic characteristics, marital status, veteran status, military status, domestic violence victim status, or ex-offender status. Employees, students, applicants or other members of the University community (including but not limited to vendors, visitors, and guests) may not be subjected to harassment that is prohibited by law or treated adversely based upon a protected characteristic.

FERPA: Family Education Rights and Privacy Act

The University at Buffalo is compliance with the Family Educational Rights and Privacy Act. Questions can be addressed to the Office of Student Affairs and Services, 542 Capen Hall, (716) 645-2982. Information is published on-line: www.buffalo.edu search box keyword FERPA and follow the links.

The Center for Academic Development Services (CADS) is a unique support service network designed to provide talented students who demonstrate enormous potential with the advice, guidance, and support they need to achieve their maximum academic success. The Center provides a variety of academic support and enrichment experiences. These include, but are not limited to, academic advising, personal and social counseling, tutoring, mentoring, workshops, courses and advocacy. Advising and counseling staff are readily available and will be a source of invaluable support to you. Students who take advantage of the many services offered by CADS represent an elite and prestigious group of learners. CADS students are involved in every aspect of university life. They participate in leadership activities, are members of Deans' Lists, Honor Societies, and are recognized nationally by "Who's Who Among American University and College Students." For information or assistance, please contact the [Center for Academic Development Services](#), 208 Norton Hall, Buffalo, NY 14260-1830; telephone 716-645-3072; fax 716-645-3075.

University Libraries

Throughout seven locations, the University Libraries offer an outstanding array of resources, technologies, services, and people to support undergraduate research and learning. Extensive print and electronic collections are available to meet the needs of students in both physical and virtual environments. Hundreds of library databases and thousands of electronic journals and electronic books are accessible via the library website from both on and off campus. Computer workstations, wireless connectivity, and group and individual study spaces are available in each library location. Accommodating the study habits and schedules of students, the Silverman Library on north campus is open 24/7 during the semester.

More than physical and virtual spaces, the Libraries also present numerous services to assist students with their academic studies. The Interlibrary Loan Department provides delivery of library materials from one campus to another, as well as access to documents not available within the Libraries' collections. Librarians are available to answer questions and offer research assistance at

reference/information desks in each library unit, as well as via phone, text, and chat messaging. Students can contact their subject librarian to set up an appointment for an individual research consultation—each UB department, program, and course is assigned a personal librarian. In addition to asking a librarian for assistance, students can also develop research skills by attending instructional sessions and workshops offered by the Libraries, or by exploring web-based tutorials, including the Research Tips website and the required Library Skills Workbook.

To learn more about the libraries, visit us in person or online at <http://library.buffalo.edu>.

Student Responsibility Statement

The university is committed to the ideal of flexibility and diversity in the educational experience. Certain regulatory procedures are necessary, however, to ensure that the complex needs of a large student body in search of diverse educational goals are met efficiently and smoothly. Students are advised to familiarize themselves with the following details in order to avoid any difficulties along their chosen path to the baccalaureate degree.

By accepting responsibility for their education, students enhance the development of their academic, social, and career goals. As a condition of enrollment, students are responsible for reviewing, understanding, and abiding by the university's regulations, procedures, requirements, and deadlines as described in official publications, including the university's undergraduate catalog, UB websites, and official university email communications. In addition, all students are required to positively affirm their knowledge of, and adherence to, UB's Student Conduct Rules, University Standards and Administrative Regulations prior to their inaugural semester at UB. Asserting a lack of knowledge of university regulations will not be accepted as a basis for an exception to these regulations.

Academic Standards Review

To maintain academic standards and determine eligibility for continued enrollment, financial aid, and participation in university activities, the University at Buffalo regularly reviews the academic records of all undergraduate students. This review addresses the quality of the student's studies as measured by the student's course grades.

Academic review is conducted at the end of each fall and spring semester.

Academic Good Standing

A student is in academic good standing if the student's cumulative UB grade point average (GPA) is 2.0 or greater and the student's most recent semester GPA at UB is 2.0 or greater.

A student in academic good standing is eligible for all university activities.

Academic Warning

Many students go through an adjustment period when beginning their baccalaureate studies at the university. Therefore, any student—freshman or transfer—whose first-semester GPA is less than 2.0 will be on academic warning in his/her second semester of study at the university.

Additionally, any student will be placed on academic warning if the student's cumulative UB GPA is 2.0 or greater but the student's most recent semester GPA is less than 2.0.

Although a student on academic warning will be considered in good standing for purposes of participation in university activities, he/she may be subject to an advisement checkstop – a

mandatory discussion with an academic advisor to help build an effective academic strategy before the student may complete any further registration activity.

Academic warning will not be noted on a student's official transcript, but will be part of the student's record.

Academic Probation

A student is on academic probation and not in academic good standing if his/her cumulative UB GPA is 2.0 or greater but his/her most recent two consecutive semester GPAs are less than 2.0.

A student is on academic probation and not in academic good standing if his/her cumulative UB GPA is less than 2.0 and quality point deficit is less than 20 after two or more semesters of study at UB.

Students may request, through their academic advisor, to have their UB summer session grades evaluated for purposes of reconsideration of their academic probationary or dismissal status.

Students on academic probation are not eligible to participate in university activities. In addition, students on academic probation may be subject to an advisement checkstop—a mandatory discussion with an academic advisor to help build an effective academic strategy before the student may complete any further registration activity.

Academic probation will not be noted on a student's official transcript, but will be part of the student's record.

Academic Dismissal

A student enrolled at UB for two or more semesters who has a cumulative UB GPA less than 2.0 and a quality point deficit of 20 or greater points will be dismissed from the university regardless of his/her most recent semester GPA. Each dismissed student will receive official notification via U.S. mail and his/her UB email account, and all future academic-year registrations will be removed and/or blocked. The student will not be allowed to reapply to UB and register for a period of at least one year.

Dismissed students may register in the summer session immediately following their initial dismissal (e.g., students dismissed in May 20xx may enroll in summer 20xx courses). In subsequent semesters, a dismissed student may not register as a non-matriculated student without prior review. A dismissed student may appeal the dismissal in writing to the Vice Provost of Undergraduate Education during a period of time specified in the dismissal letter. Consultation with an academic advisor is required as part of the dismissal appeal process. If the appeal is granted, notice of that will include the terms and conditions of continued study. Academic dismissal will be noted on the student's official transcript and will be part of the student's record.

UNIVERSITY POLICY ON ACADEMIC INTEGRITY

Academic integrity is covered and explained on the University at Buffalo's Undergraduate Catalog. It is available at www.buffalo.edu and in the search box, type the words UNDERGRADUATE CATALOG and hit GO. Follow the links to the UB Undergraduate Catalog web page. In the "Search the UB Undergraduate Catalog" search box, type the words "ACADEMIC INTEGRITY" and follow the links to the policy pages.

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. The University community depends upon shared academic standards. Academic dishonesty in any form by any member of the University community represents a fundamental impairment of these standards.

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. If consultative resolution does not resolve the question, the student has the right to appeal the decision. If the instructor feels that the circumstances of the alleged academic dishonesty warrant additional review, formal deliberation procedures may be used.

Actions that compromise academic integrity are exemplified by the following:

- (a) **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.
- (b) **Plagiarism.** Copying or receiving material from a source or sources and submitting this material as one's own, without acknowledging the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.
- (c) **Cheating.** Receiving information, or soliciting information, from another student or other unauthorized source, or giving information to another student, with the intent to deceive while completing an examination or individual assignment.
- (d) **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.
- (e) **Misrepresentation of documents.** Forgery, alteration, or misuse of any University or Official document, record, or instrument of identification.
- (f) **Confidential academic materials.** Procurement, distribution, or acceptance of examinations or laboratory results without prior and expressed consent of the instructor.
- (g) **Selling academic assignments.** No person shall, for financial consideration or the promise of financial consideration, prepare, offer to prepare, cause to be prepared, sell, or offer for sale to any person any written material which the seller knows, is informed, or has reason to believe is intended for submission as a dissertation or thesis, term paper, essay, report, or other written assignment by a student in a university, college, academy, school, or other educational institution to such institution or to a course, seminar, or degree program held by such institution.
- (h) **Selling computer assignments.** No person shall sell or offer for sale to any person enrolled in the State University of New York any computer assignment, or any assistance in the preparation,

research, or writing of a computer assignment, intended for submission in fulfillment of any academic requirement.

(i) Purchasing academic assignments. No person shall purchase an academic assignment intended for submission in fulfillment of any course or academic program requirements.

CONSTRUCTIVE RESOLUTION PROCEDURAL STEPS / APPEALS / SANCTIONS: When an instance of suspected or alleged academic dishonesty by a student arises, it shall be resolved according to the procedures set forth in the current Undergraduate Catalog unless procedures already exist within the professional school from which the student comes. These procedures assume that many questions of academic dishonesty will be resolved through informal consultation between the student and the instructor. If, however, such informal consultation fails to resolve the question, or the instructor considers formal proceedings warranted, the formal procedures must be used. It is recommended that the instructor consult with the department chair and/or the Dean if there are any questions regarding these procedures.

UNIVERSITY UNDERGRADUATE STUDENT POLICY ON GRIEVANCE PROCEDURE

A student having a disagreement with an instructor regarding an academic issue should meet with the instructor to directly try to resolve the issue. If the disagreement is not resolved, the student should next meet with the Undergraduate Student Advisor or Program Director to discuss the issue. Depending on the outcome of these discussions, a meeting of the student, instructor and Program Director will be held to resolve the complaint. Should this level of mediation fail to resolve the dispute, a meeting of the student, instructor and Department Chair will be held to discuss and resolve the complaint.

At all levels of review, meetings are conducted only by disinterested parties. That means an instructor against whom the student complaint is directed cannot serve as a neutral arbitrator in meeting to discuss and/or resolve an issue. These actions to resolve a complaint constitute the informal departmental steps.

Should reconciliation of a complaint not be achieved by this informal process, the student then has the right to file a formal grievance as outlined in the Student Handbook or University Undergraduate Catalog. Additional information can be found on-line at: www.buffalo.edu and in the search box type the words UNDERGRADUATE CATALOG. Follow the links to the UB Undergraduate Catalog page, and in the 'Search the Undergraduate Catalog' box, type the words ACADEMIC GRIEVANCE POLICY AND PROCEDURES FOR UNDERGRADUATE STUDENTS and follow the links to those pages that display the policy.

A complaint that alleges discrimination or sexual harassment should be reported to a neutral program official (Chair, Program Director or Undergraduate Student Advisor) and the Office of Equity, Diversity and Affirmative Action Administration, 406 Capen Hall, 716-645-2266. Alleged criminal acts should be reported to University Police, 716-645-2222.

UNIVERSITY POLICY AND PROCEDURES FOR LEAVE OF ABSENCE

Rationale:

The University recognizes that circumstances may occur during the period of a student's academic enrollment which necessitate or make advisable temporary withdrawal from a program of study. In such circumstances a leave of absence may be granted which will allow the student to be absent from an academic program for a specified period of time without academic penalty. In all such cases, however, the following procedures must be followed to assure authorized withdrawals from, and return to, academic programs. Informal agreements regarding leaves of absence are not advised since they may jeopardize the rights of the student to return to school without academic penalty as well as the right of the department to fix the conditions of a student's return.

Leave Of Absence Procedures:

Students must first contact the Undergraduate Advisor in the Department of Pharmacology and Toxicology and be eligible for the UB Leave of Absence Policy, available on-line at: www.registrar.buffalo.edu.

The Department may request a medical opinion from a physician designated by the Department prior to acting upon an undergraduate student's request to return from a leave which was granted for medical reasons. If functional capabilities are questionable, a return may be probationary for a specified period of time. A written decision regarding probationary status shall be included in the student's file.

Students should realize that, because of the sequence of courses within the Program in Pharmacology and Toxicology, taking a Leave of Absence for one semester may necessitate that the student refrain from taking program courses an additional semester. Courses taught in sequence in a fall or spring semester will not be re-taught until the following fall or spring. There is no summer registration to make up missing courses to stay in cycle.

Students requesting to extend a Leave of Absence beyond two semesters will be dropped from the Programs in Biotechnology or Medical Technology and will have to reapply for admission to the Program the semester they plan on returning to the University.

UNIVERSITY POLICIES AND PROCEDURES FOR WITHDRAWAL FROM CLASSES AND TUITION RESPONSIBILITY

The University at Buffalo Office of the Registrar/Student Academic Records and Financial Services is the office that works with students to disseminate information about tuition responsibility. The main office is located at 232 Capen Hall, UB North Campus.

www.studentaccounts.buffalo.edu

AWARDS AND HONORS

Catalog Reference for University Honors, Latin Honors, Dean's List, etc.

www.buffalo.edu and in the search box, type the words UNDERGRADUATE CATALOG and hit GO. Follow the links to the UB Undergraduate Catalog home page. On that home page, in the "Search the UB Undergraduate Catalog", type the words LATIN HONORS, or "DEAN'S LIST", etc. and follow the links to the section you wish to reference.

Department:

The Pharmacology and Toxicology Academic Achievement Award will be conferred at Commencement to the student with the best academic record in the Pharmacology and Toxicology B.S. Program.

University:

Latin Honors:

Beginning with degree conferrals of September 1, 2011 and thereafter, students earning baccalaureate degrees are eligible to receive Latin Honors based on their UB GPA only, with at least 60 credit hours at UB, and with at least 54 of those 60 minimum hours graded or pass/fail (i.e., not S/U). Latin Honors are awarded on the following scale average (based on 4.00 - A):

3.20 *cum laude*

3.50 *magna cum laude*

3.75 *summa cum laude*

Dean's List:

Students will be named on the Dean's List for each semester in which they earn a minimum grade point average of 3.6 and have completed at least 15 hours or more of course-work during the semester, 12 of which are letter graded.

Who's Who Among Students in American Colleges and Universities:

<http://www.whoswhoamongstudents.com/>

For leadership, service, citizenship, and potential for future achievement. Nominees are recommended by the faculty.

A full-list of honoraries and honor societies at UB is available on-line at www.buffalo.edu and in the search box, type the word UNDERGRADUATE CATALOG and hit GO. Follow the links to the home page of the UB Undergraduate Catalog. Once there, in the "Search the UB Undergraduate Catalog" search box, type the words HONORARIES AND HONOR SOCIETIES and follow the links to that page.

Student Accessed Advisement Tools:

UB HUB AAR: Academic Advisement Report (University at Buffalo Academic Advisement Report and Degree Audit Reporting System) is an automated system that generates a report of each individual student's UB and transfer coursework matched with the student's degree requirements. Coursework satisfying university, general education and major requirements is identified. The report also identifies courses that will satisfy specific degree requirements yet to be completed. UB HUB AAR is an advising tool and graduation check designed to assist the student, advisor, and university in determining the student's progress toward completion of all requirements. It is used by the Office of

Degree Audit to determine if a student has completed all requirements for graduation. Because it is accessed by different offices for progress toward graduation, it is important that a HUB AAR report be very accurate. A student may notice that transfer work, AP or CLEP credit may not accurately be reflected on HUB AAR. It is the responsibility of the student to follow up on errors. Students who have inaccurate HUB AAR will NOT be cleared for degree conferral.

UNIVERSITY ADVISEMENT AND COUNSELING OPPORTUNITIES

Academic Advisement at UB is available from many sources:

- Students intending a major in one of the undergraduate programs in the School of Medicine and Biomedical Sciences can obtain advisement from the Biomedical Sciences Advisor for undergraduate programs in SMBS, 127 Sherman Annex, UB South Campus, 716-829-3005. Examples of majors: Biochemistry, Biomedical Sciences, Nuclear Medicine Technology, and Pharmacology and Toxicology.
- Students interested in the Pharmacology and Toxicology B.S. program should contact Dr. James Olson, Undergraduate Program Director (jolson@buffalo.edu).
- Students who are considering continuing on to professional school are encouraged to contact the UB Prehealth Advisors on the UB North Campus, 109 Norton Hall, 716-645-6026.
- Students not yet admitted into a major can receive general advisement from the Division of Undergraduate Academic Services, 109 Norton Hall, 716-645-2450. Individual appointments may be made with an advisor, and the “Quick Question Window” is available on a drop-in basis.
- Students comparing majors between the Biomedical Sciences and the College of Arts and Sciences can receive advisement from the College of Arts and Sciences Student Advisement and Services. Individual appointments may be made with an advisor. The office is located at 275 Park Hall, UB North Campus, 716-645-6883.
- Information about advising is also available on the web at: www.advising.buffalo.edu

Career Services: www.buffalo.edu and in the search box, type the words CAREER SERVICES and follow the links to the UB Office of Career Services.

The Office of Career Services, 259 Capen Hall, 716-645-2232, assists students with such services as resume writing, job availability, application to graduate or professional school, finding an internship, and successful interviewing. The Office of Career Services also has free or low-cost skills testing to best match students academic talents, interests, values and career options. Tests such as Discover, Myers-Briggs, Campbell Interest Inventory can be a tremendous help when students are interested in more than one major and need assistance in choosing a major. The tests and post-test discussions are done by appointment.

Counseling Services: <http://ub-counseling.buffalo.edu/> www.buffalo.edu and in the search box type the words COUNSELING CENTER and follow the links to the UB Counseling Center.

The University at Buffalo Counseling Services, 120 Richmond Quad, 716-645-2720, The Counseling Services office should be a student's first call for any issue related to an emotional state, dealing with stress, handling a crisis, or coping with the transition to college. Students often come for help with concerns both large and small, including depression, anxiety, eating disorders, chemical use, assault

or abuse, sexual identity, relationship conflicts, grief, academic stress, and family issues. Counseling Services can also be a referral resource when situations require off-campus care or longer-term therapy. Services are available to all full and part-time students who are currently registered. Visits to Counseling Services are free – all visits are covered by the mandatory Comprehensive Fee included in the tuition bill.

Health Services: www.buffalo.edu and word search **STUDENT HEALTH SERVICES**

Most health care needs and concerns can be taken care of by one of the UB providers. Please call 716-829-3316 or stop by Michael Hall to make an appointment. Most students can be seen the same day or the next day. The office offers appointment times during some evening and weekend hours. Specialty services include:

- Psychiatric evaluation and treatment, Women's health clinic,
- Infections disease clinic, HIV testing and counseling, Immunization Clinic
- Allergy shot clinic, Immunization clinic, Travel clinic
- Chiropractic care, Nutrition, Dental care at UB, Sports medicine

Campus Ministries Association: www.buffalo.edu and word search **CAMPUS MINISTRY**

Campus ministries seek to integrate campus life and spiritual life. They are available at 277 Student Union. 716-645-2998.

STUDENT ASSOCIATIONS and ACTIVITIES

Pharmacology and Toxicology Club

The Pharmacology and Toxicology Club connects undergraduate pharmacology students socially and academically, and helps them learn about graduate opportunities in pharmacology and toxicology and the other biomedical sciences at UB.

The Pharmacology and Toxicology Club helps interested students:

- connect with each other
- meet new people
- network with professors
- form study groups
- get help with tests
- establish a distinct identity for pharmacology students

What We Do

Volunteering

- Give back to the UB and Western New York community
- Participate in on- and off-campus events

Fundraising

Our club is entirely driven by funds raised by our members. We actively raise funds each year through activities such as:

- an annual T-shirt and sweatshirt sale
- local restaurant fundraisers

Special Events

We organize a number of meet-and-greets for students and faculty each year and host events to thank our members for their hard work.

Get Involved

Interested individuals can connect with us on [Facebook](#) or email pharmtoxclub@gmail.com.

University Student Activities

Many free and very low cost activities exist on campus. Examples are:

- Distinguished speaker series
- Music concerts
- Art exhibits
- Author series
- Lectures
- NPR
- September Welcome Activities
- Intramural athletics / gym facilities
- Life workshops

These are funded by the mandatory student activity fees which are included in a student's tuition bill.

For additional information, please begin at www.buffalo.edu and "search box" the following:

- Undergraduate student association (SA)
- Alumni Arena
- Music Department
- Center for the Arts
- Distinguished Speaker Series
- WBFO
- September Welcome
- Life Workshops
- Art Department
- College of Arts and Sciences, and click on "outreach" or "CAS Clicks"