Department of Pharmaceutical Sciences New Undergraduate and Graduate Student Orientation

School of Pharmacy and
Pharmaceutical Sciences
University at Buffalo
State University of New York

Keeping You Safe: UB Health and Safety Guidelines Academic Year 21-22

University at Buffalo
School of Pharmacy and Pharmaceutical Sciences

Health and Safety Highlights

University at Buffalo
School of Pharmacy and Pharmaceutical Sciences

Vaccinated Students:
Masks and Physical Distancing Requirements

- Required inside all campus buildings, including classrooms, hallways, libraries and other common areas.
- Face coverings not needed inside personal residence hall rooms, while eating/drinking in UB dining areas or non-public facing personal workstations.
- Face coverings needed at large outdoor events or settings where large groups of people congregate.
- Face coverings not needed for other UB outdoor settings.
- Physical distancing not required at this time.

Non-Vaccinated Students:
Masks and Physical Distancing Requirements

- Responsible for wearing a mask in all indoor and outdoor locations on UB's campuses, with the exception of personal residence hall rooms, personal workstations or while eating in university dining areas.

- Physical distancing not required, but is encouraged wherever practical

No Vaccine: Automatic Resignation From All Courses:

It is anticipated the Emergency Use Authorization (EAU) for COVID-19 vaccines will be removed in the coming weeks. All UB students are required to be vaccinated once the EAU is removed or will face immediate resignation from all courses.

Here are the details…

Once FDA approval is granted, all unvaccinated students who have not received an official exemption due to medical reasons or religious beliefs as described on the UB COVID-19 Immunization Requirements website must become vaccinated and submit proof of vaccination with the following deadlines:

Deadlines: **One Dose Vaccine:**

Students receiving a vaccine that requires only one dose must receive the vaccine **within seven days of the date of approval.**

Deadlines: **Two Dose Vaccine:**

Students receiving a vaccine that requires two doses will be required to **receive an initial dose within seven days of the date of approval and to have completed the full vaccine regimen within five weeks.**

Course Resignation:

Students who fail to meet either of these deadlines will be **immediately resigned from all courses** coded in HUB as having in-person instructional components and assigned an R grade for those courses.

Students are responsible for reviewing and understanding applicable policies related to the receipt of R grades in the Undergraduate Catalog and/or the Graduate School Policy Library.

Course Financial Liability:

Students are financially liable for all courses unless they have dropped or resigned by published deadlines. This applies to students who are resigned from courses with in-person instructional components due to non-compliance with the COVID-19 vaccination requirement.

Please refer to Student Accounts Financial Liability Deadline site for detailed information.

Where to Find a Vaccine Locally:

Vaccine Hound:

SPPS and UB Health and Safety Resources:

SPPS Forward
UB Vaccination Updates and Protocols
UB Student Guide

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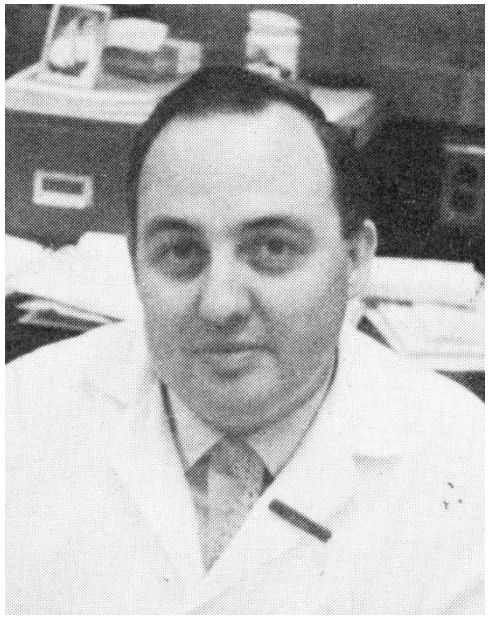
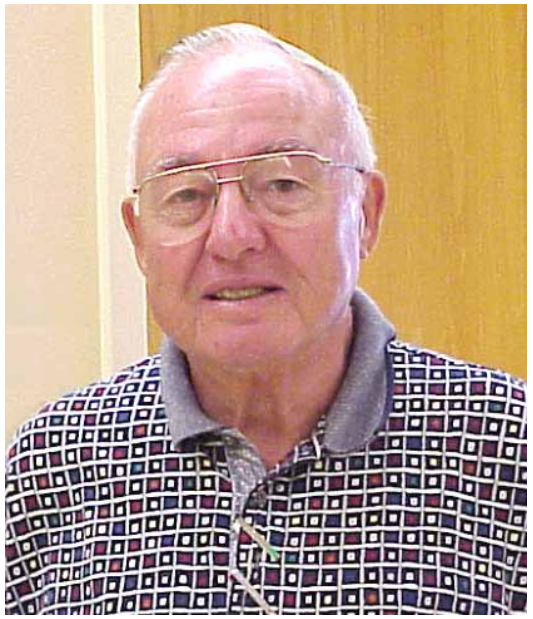
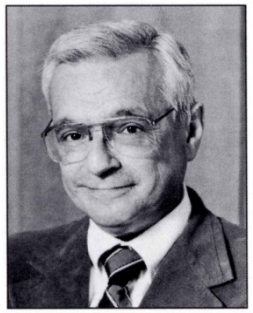
Gerhard Levy



1958



2000



Milo Gibaldi

"Father of Pharmacodynamics"
Originator of Biopharmaceutics
Innovator in Pharmacokinetics
Promoter of Clinical Pharmacokinetics

Eino Nelson

A TRAINING PROGRAM IN CLINICAL PHARMACOKINETICS

by Gerhard Levy

DRUG INTELLIGENCE & CLINICAL PHARMACY 12:204-209 (April) 1978

GL was a major driving force in the development of clinical pharmacokinetics in Buffalo and in the world.

Dept. of Pharmaceutical Sciences: Faculty Leaders

Drug Transport

Marilyn E. Morris
SUNY Distinguished Professor
Chair

Protein

Sathy Balu-Iyer
Professor
Assoc. Dean for Research

Neuro PK

Kathleen K. Boje
Assoc. Professor
Assoc. Dean for Academic Affairs

Pharmacometrics

Robert Bies
Professor
Director of Graduate Studies

PK/PD

Donald E. Mager
Professor
Vice-Chair
Interim Director, BS Program

Pharmaceutical Sciences Faculty

PK/PD

William J. Jusko
SUNY Distinguished Professor

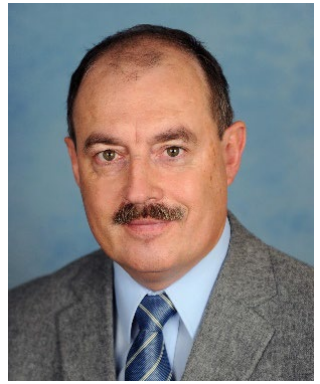
Neuropharmacology

James O'Donnell
Dean Emeritus

Chemotherapy

R. M. Straubinger

Cell Dynamics



W. Krzyzanski

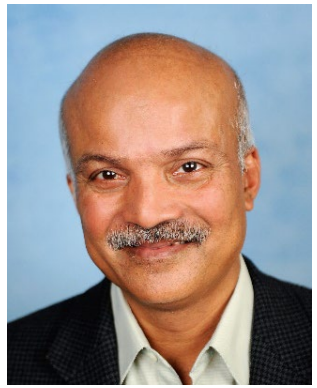
Proteomics

J. Qu

Antibody PK/PD

J. Balthasar

Pharmacogenomics



M. Ramanathan

Toxicogenetics

J. G. Blanco

Pharmaceutical Sciences Faculty

Antibody PK/PD

D. Shah

Drug Transport

J. Sprowl

Systems Pharmacology

J. Gallo

Pharmaceutical Chemistry & Drug Delivery

Y. You

QSP/PK-PD Modeling, Oncology

S. Woo

PharmSci Research Faculty

Bioanalysis

D. Ruszaj

Psycho-pharmacology

Y. Xu

Communi-cations

R. Chau

Bioanalysis/Pharm Chem

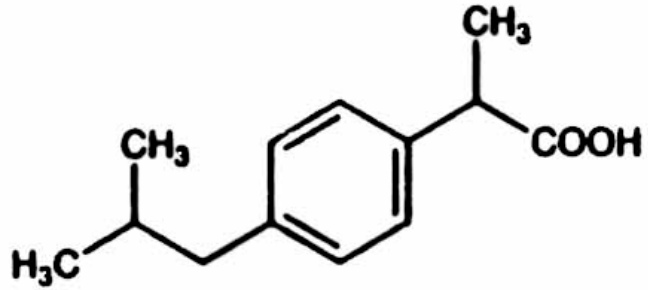
V. Iyer

What pharmaceutical scientists do

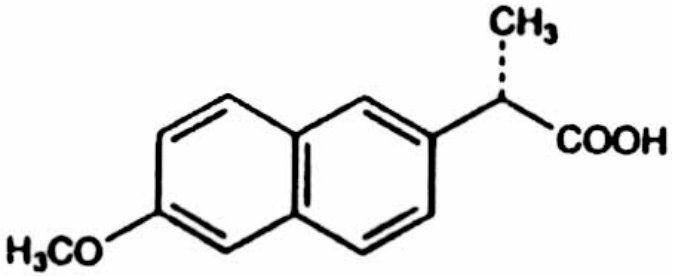
- Impact society through drug research
  - Develop new medications
  - Advance drug development and delivery
- Pharmacokinetics: movement of drugs in the body
- Pharmacodynamics: effects of drugs in the body
- Pharmacogenomics: how genes affect a body's response to drugs
- Pharmacometrics: computational models to quantify drug interactions in the body

From Dr. Mager

NSAIDS



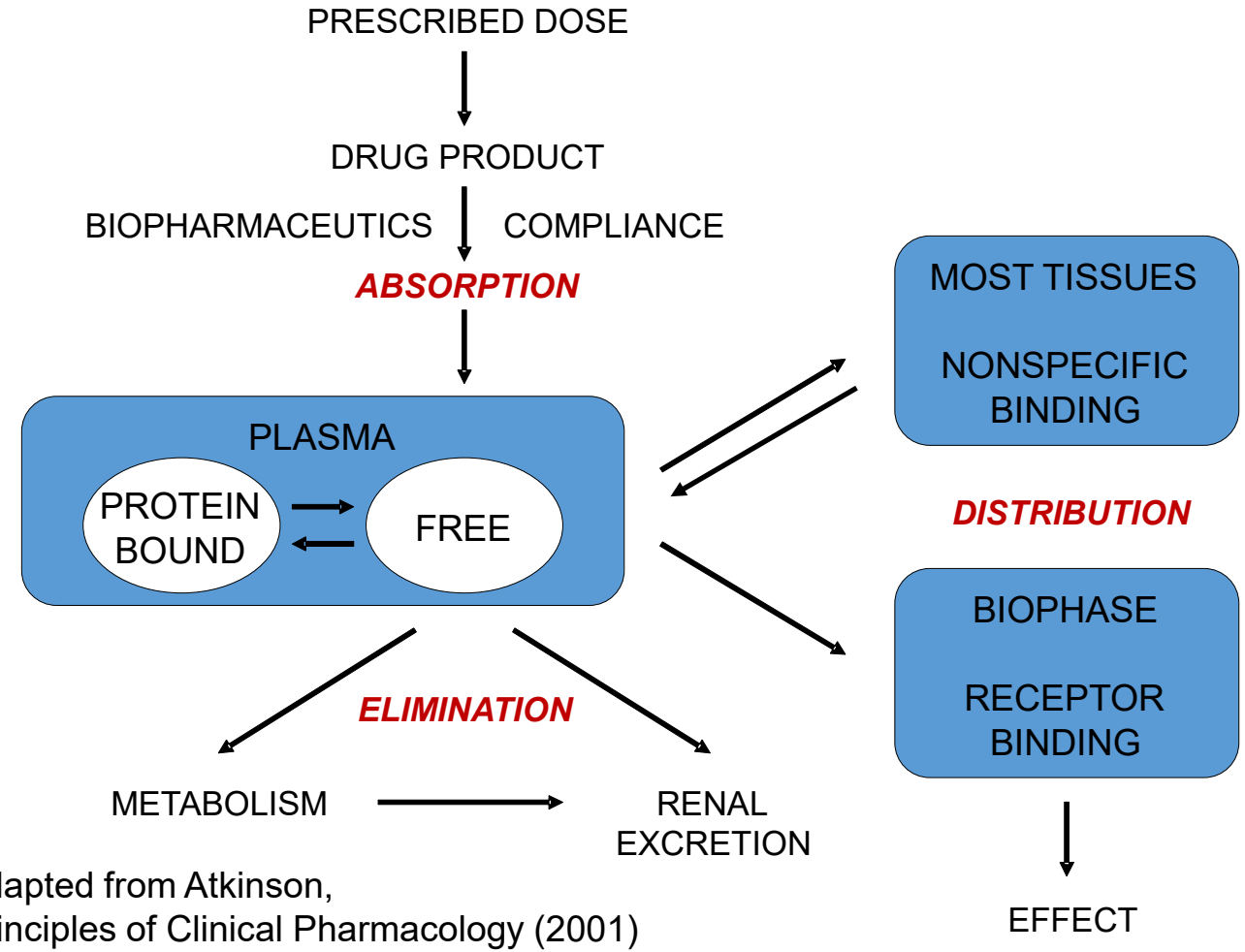
Ibuprofen
[Advil]
log *P* = 3.65
log *D* = 1.21



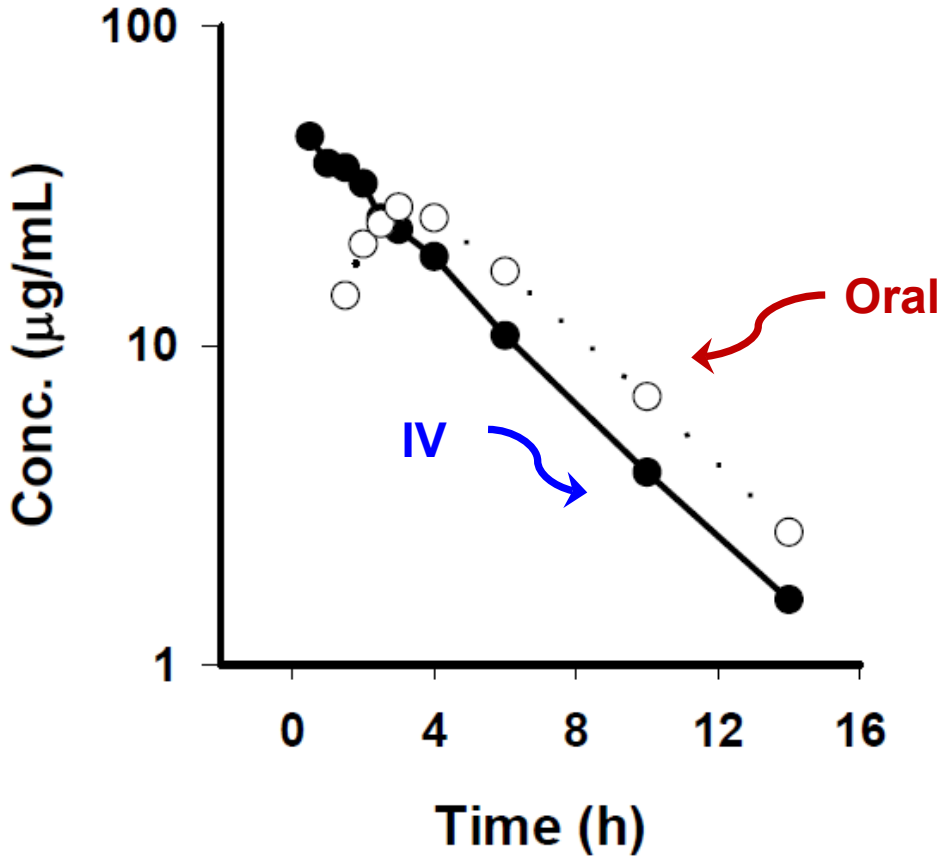
Naproxen
[Aleve]
log *P* = 3.18
log *D* = 0.90

Pharmacokinetics

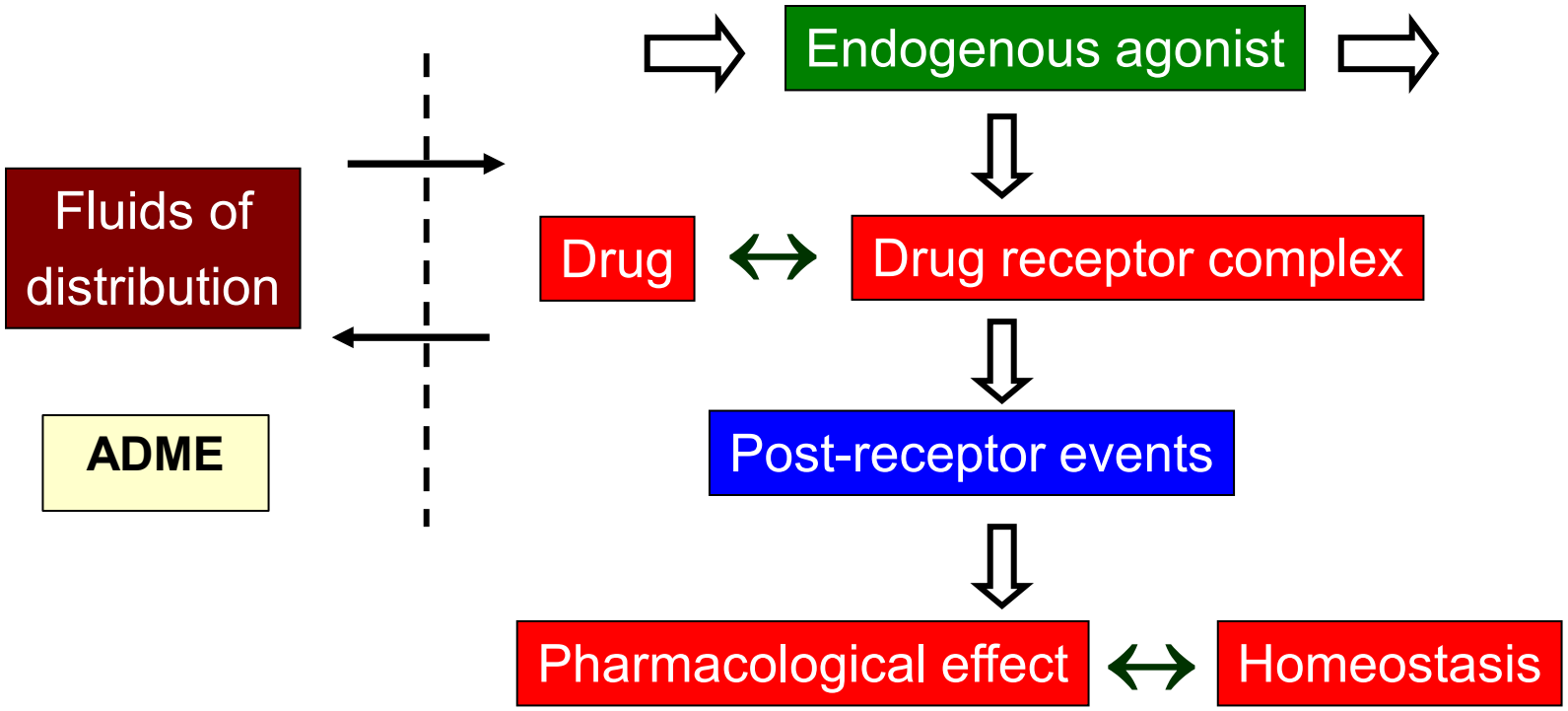
The study and mathematical characterization of the time course of drug absorption, distribution, metabolism, and excretion (**ADME**) processes that determine the time-course of drug action.



Adapted from Atkinson, Principles of Clinical Pharmacology (2001)



Pharmacodynamics and Sources of Variability in Drug Response



Pharmacogenomics

Environment

Diet

Disease

Age/Pregnancy

Fig.2. Schematic representation of processes that affect the pharmacological effect intensity versus concentration relationship of a drug. **In the scheme the drug is located in the biophase**.

Levy. *Clin Pharmacokinet*. 34:323-33 (1998)

Pharmaceutical Sciences Department Research Strengths

- Pharmacokinetics and Pharmacodynamics
- Systems Pharmacology
- Pharmacometrics
- Cancer Therapeutics
- Protein Therapeutics
- Drug Delivery
- Membrane transporters
- Bioanalysis and Proteomics
- Pharmacogenomics/genetics

Program Highlights

- **Symposia**
  - -Center for Protein Therapeutics
  - -Quantitative Systems Pharmacology
  - -Buffalo Pharmaceutical Sciences Symposium
  - -Computational and Data Enabled Sciences and Engineering Program Days (focus on Data Science, Artificial -Intelligence and Machine Learning)
- **Lectureships**
  - -Gerhard Levy Distinguished Scientist Lectureship
  - -David K. Chu Drug Development Lectureship
  - -Graduate Student Alumni Lectureship
- **Internships** in the pharmaceutical industry or FDA


2018 Buffalo Pharmaceutics Symposium

Information on Pharmaceutical Sciences programs

http://pharmacy.buffalo.edu/academics/pharm-sci.html

Academic Programs in Pharmaceutical Sciences

- **BS in Pharmaceutical Sciences**
- **BS \ MS in Pharmaceutical Sciences**
- **MS in Pharmaceutical Sciences**
- **MS in Pharmacometrics and Personalized Pharmacotherapy**
- **PhD in Pharmaceutical Sciences**
- **PharmD \ MS or PhD Joint degrees**

Pharmaceutical Sciences BS Degree

- While the major is structurally a basic science program, it is also a unique interdisciplinary field
  - Physical chemistry, biopharmaceutics, PK/PD, physiology, genomics, computational modeling, statistics
- Graduates will be able to apply:
  - the principles of the scientific method
  - fundamentals of current research methodology
  - core skills needed to manage, evaluate and interpret scientific data
  - scientific communication skills
- Outstanding career outlook and post-undergraduate educational opportunities

Junior Year

Junior Year

Fall Semester

Course	Category	Credit
BCH 403LEC Biochemical Principles	M/P	4
PGY 451LEC Human Physiology I	M/P	3
PHC 330DIS Pharm Sci Writing Lab	CL2	1
PHC 331LEC Case Studies in Pharm Sci	CL2	2
PHC 401LR Pharmaceutical Chemistry	M	3
PHC 409LR Pharmacy Calculations	M	3
PHC 488SEM Faculty Research Seminar	M	1
		Total Credits: 17

Spring Semester

Course	Category	Credit
PGY 452LEC Human Physiology	M	3
PHC 332LEC Introduction to Research	M	1
PHC 410LEC Physical Pharmacy	M	3
PHC 420LEC Pharmaceutical Analysis	M	1
PCH 421LEC Pharmaceutical Principles & PHC 421 Lab	M	3
PHC 425LEC Pharmaceutical Biotech & PHC 426 Lab ((Odd Years Only)) or Scientific Elective	M or M	3 or 3
UBC 399 UB Capstone	CAP	1
		Total Credits: 15

Senior Year

Fall Semester

Course	Category	Credit
PMY 405LR Essentials of Pharmacology I	M	5
PHC 411LR Intro Pharmacokin Bioph 1	M	3
PHC 417LEC Pharmacogenomics	M	2
PHC 431LEC Impt Advan Pharm Sci	M	2
PHC 498 Undergraduate Research	M	3
	Total Credits: 15	

Spring Semester

Course	Category	Credit
PMY 406LR Essentials of Pharmacology II	M	5
PHC 414SEM Pharmaceutics Seminar	M	1
PHC 432DIS Methods Sci Commun	M	1
PHC 425LEC Pharmaceutical Biotech & PHC 426 Lab ((Odd Years Only)) or Scientific Elective	M or M	3 or 3
Science Elective	M	4
	Total Credits: 14	

Total Credits Required for Degree:	125

BS Junior Faculty Advisors

Henna	Asad	50242227	hennaasa@buffalo.edu	Balthasar
Samuel	Avetisyan	50298521	samuelav@buffalo.edu	Balu-Iyer
Andrew	Cao	50264660	acao3@buffalo.edu	Blanco
Adam	Choi	50273289	adamchoi@buffalo.edu	Bies
Raelea	Derylak	50257224	raeleade@buffalo.edu	Boje
Emily	Gorecki	50257816	emgoreck@buffalo.edu	Gallo
Gregory	Hawuczyk	50273027	gwhawucz@buffalo.edu	Jusko
Shirley	Huang	50258323	shuang48@buffalo.edu	Krzyzanski
Cody	Keller	50255716	codykell@buffalo.edu	Mager
Hoan	Le	50217143	hoanle@buffalo.edu	Qu
Colin	Murray	50276450	murray54@buffalo.edu	Ramanathan
Amber	Pike	50298073	amberpik@buffalo.edu	Shah
Sara	Skivington	50264968	saraskiv@buffalo.edu	Straubinger
Hao Ming	Wu	50268940	hwu42@buffalo.edu	Woo
Harley	Le	50301563	huyenle@buffalo.edu	You
Bao	Ly	50309348	baoly@buffalo.edu	Ying Xu
Sara	Hahn	50300884	sarahahn@buffalo.edu	Sprowl
Maureen	Parks	50311281	mcparks@buffalo.edu	Morris

Choose research advisor by Dec 3, 2021: PHC 488

Class Officers for BS Pharm Sci 2020-2021

- **President:** Wensi Wu
- **Vice-President:** Leeha Mahmood
- **Secretary:** Peyton Smith

- **Request for nominations will go out shortly**

On the Horizon

- **Administrative UBLearns Course: Pharmaceutical Sciences BS Program**
- **Provide Dr. Mager with an index card with your name, phonetic pronunciation of your name, and whether you receive TAP or Excelsior (for advisement purposes only; Due 9/2)**
- **Election of Class Officers**
- **Academic Achievement Awards: Commendation from the Dean for academic performance by Juniors on required courses**

MS in Pharmaceutical Sciences

The master's program in pharmaceutical sciences focuses on advanced training in the discipline encompassing PK/PD modeling, drug delivery and systems pharmacology

The 2 -3 year program will include not only conceptual training in the discipline, but also significant laboratory engagement and course offerings that include hands-on computational training, and opportunities to engage in research that will provide the experience necessary for those seeking positions in the pharmaceutical industry or regulatory agencies.

Required Courses for the MS in Pharmaceutical Sciences

M.S. IN PHARMACEUTICAL SCIENCES

	Requirement	Credit hours
1.	PHC 588 Faculty Research Seminar	**1**
2.	Minimum *departmental* didactic credit hours excluding research, laboratory courses, seminars and tutorials.	**10**
3.	Minimum credit hours from other departmental courses, laboratory courses and department electives.	**5**
4.	Minimum total credit hours	**30**
5.	Satisfactory completion of a research project, including approval of the Project Committee after submission of a written project report, presentation of an open seminar and oral defense.	

MS in Pharmacometrics and Personalized Pharmacotherapy

The master's program in pharmacometrics and personalized pharmacotherapy focuses on advanced training in the pharmacometrics disciplines of advanced pharmacokinetics and pharmacodynamics

The 1 ½ -2 year program will include not only conceptual training in the discipline, but also practical course offerings that include hands-on computational training, and opportunities to engage in research that will provide the experience necessary for those seeking positions in the pharmaceutical industry or regulatory agencies.

Required Courses for the MS in Pharmacometrics and Personalized Pharmacotherapy

M.S. IN PHARMACOMETRICS & PERSONALIZED PHARMACOTHERAPY

	Requirement	Credit hours
1.	PHC 588 Faculty Research Seminar	**1**
2.	PHC 504 Computational Basis of Pharmacometrics	**2**
3.	PHC 506 Biometry in the Pharmaceutical Sciences	**3**
4.	PHC 512 Pharmacometric Software	**2**
5.	PHC 517 Pharmacogenomics*	**2**
6.	PHC 607 Intermediate Pharmacokinetics	**3**
7.	PHC 610 Population Pharmacokinetics	**2**
8.	PHC 613/PHC 614 Departmental Seminar (1 credit per semester for two semesters	**2**
8.	PHC 615/PHC 616 Research	**5-10**

Required Courses for Ph.D.

- PHC 588 Faculty Research Seminar (1 credit)
- PHC 500 Drug Development (2 credits)
- PHC 539 Protein & Antibody Therapeutics (2 credits)
- PHC 509 Pharmacogenetics for Pharm. Sciences (2 credits)
- PHC 607 Intermediate Pharmacokinetics (3 credits)
- PHC 630 Drug Metabolism & Transport (3 credits)
- PHC 508 Drug Delivery (3 credits)
- PHC 506 Biometry for Pharm. Sciences (3 credits)
- PHC 510 Drug Analysis (3 credits)

Career Opportunities

- Pharmaceutical Industry- Small or Large Pharma
- Regulatory Agencies- Food and Drug Administration
- Academia, Research Institutes

Fall 2021 PHC 488/588 Faculty Research Seminar

All on Tuesdays in Pharmacy Building Rm 443 except indicated

2021	Date	Speaker #1 (11:10-11:35 AM)	Speaker #2 (11:35-12:00 PM)
August	31	Introduction (Dr. Xu) Laboratories and Facilities: Safety and Etiquette (Dr. Chau, Donna Ruszaj, Dr. Blanco)	
Sept	7	BioSafety and BBP training (Dr. David Pawlowski)	
	14	Responsible Conduct of Research I (Dr. Robert Chau)	
	21	Responsible Conduct of Research II (Dr. Robert Chau)	
	28	Responsible Conduct of Research III (Animal and Clinical Studies) (Dr. Stanley Halvorsen)	
Oct	5	Dr. R. Bies/Dr. D Mager (choosing a mentor)	Dr. Sukyung Woo
	12	Dr. Jason Sprowl	Dr. Dhaval Shah
	19	Dr. Robert Straubinger	Dr. Youngjae You
	26	Dr. James Gallo	Dr. Jun Qu
Nov	2	Dr. Donald Mager	Dr. Sathy Balu-Iyer
	9	Dr. Robert Bies	Dr. Joseph Balthasar
	16	Dr. Javier Blanco	Dr. Murali Ramanathan
	23	Thanksgiving break	
	30	Dr. Wojciech Krzyzanski	Dr. William J Jusko
Dec	6	Dr. Y Xu/Dr. J O'Donnell	

UB SPPS Annual Summer Picnic and Pharm Sci Department Welcome (9/2)

Pharmaceutical Sciences Welcome Reception

September 2nd 2021

4 PM – 5 PM

Room 190