A 3D rendering of various blood cells, including red blood cells (erythrocytes) and white blood cells (leukocytes), set against a dark blue background with a grid pattern. The cells are depicted in various orientations and positions, creating a sense of depth and movement.

**BASIC BIOMEDICAL SCIENCE
CURRICULUM**

**FALL 2011 – SUMMER 2012
HANDBOOK**

**GRADUATE SCHOOL OF BIOMEDICAL SCIENCES
GALVESTON, TEXAS**

DISCLAIMER

This booklet is not intended as a formal publication of The University of Texas Medical Branch. It should not be relied upon as the sole source of information regarding the Basic Biomedical Science Curriculum. Refer to the Graduate School of Biomedical Sciences at Galveston-Policies and Operations Manual for specific policy details and to the UTMB General Catalog for general information, along with the GSBS Student Handbook.

While every effort has been made to assure accuracy and timeliness of this information, The University of Texas Medical Branch is not responsible for any misrepresentation that might arise through error in its preparation or through failure to give notice of changes in requirements, policies, tuition and fees, course offerings, and other matters affecting students or applicants. The provisions of this booklet do not constitute an irrevocable contract between any student or applicant for admission and The University of Texas Medical Branch.

The University reserves the right to withdraw courses at any time, to change fees and tuition, academic calendars, curricula, degree requirements, graduation procedures, and any other requirement affecting students. Changes will become effective whenever the proper authorities so determine and will apply to both prospective students and those enrolled already.

No person shall be excluded from participation in, denied the benefits of, or be subject to discrimination under any program or activity sponsored or conducted by The University of Texas System or any of its component institutions, on any basis prohibited by applicable law, including, but not limited to race, color, national origin, sex, age, religion, disability or status as a Vietnam era veteran in any of its policies, practices and procedures. Also, The University of Texas does not discriminate on the basis of sexual orientation.

TABLE OF CONTENTS

I.	FIRST-YEAR BASIC BIOMEDICAL SCIENCE CURRICULUM (BBSC)	5
II.	FINANCIAL POLICIES AND BENEFITS	
	Time Accrual	6
	Health Insurance	6
	Tuition and Fees	7
	Retirement Benefits	7
	FICA	7
	Federal Income Tax	8
	Paychecks	8
	Parking	8
	Funding Guidelines	8
	Funding Opportunities/Scholarships	9
	Bookstore Purchases	9
III.	ADMINISTRATIVE ISSUES	
	Contacts	9
	Badges	10
	Building Access	10
	Mail	11
	Telephones	11
	Weather Emergency Policy	11
IV.	ACADEMIC REGULATIONS	
	Professionalism and Compliance	12
	Grades	13
	Probation	13
	Dismissal	13
	Student Advisors	13
	Drop/Add Policy for GSBS “Short Courses” That Begin After the Census Enrollment Date of A Term	14
	Other Rules and Regulations	16

V.	GRADUATE FACULTY MEMBERS	.....	16
VI.	COURSE SCHEDULE	.....	17
VII.	BBSC COURSE OFFERINGS	.....	18
	Required Courses	.....	19
	Integrative Elective Courses	.....	25
	Other Courses	.....	33
APPENDICES			
	Instructions for Writing Take-Home Assignment Answers	.....	35
	Guidelines for Filing a Written Complaint	.....	38
	Handbooks and Calendars	.....	39
	BBSC Academic Year 1 Calendar Fall 2011–Summer 2012	.....	40
	Classroom Etiquette for UTMB Professional Students	.....	41
	Student Rights & Responsibilities	.....	42

This booklet provides information pertaining to the First-Year Graduate Studies in Basic Biomedical Sciences offered by the Graduate School of Biomedical Sciences at the University of Texas Medical Branch (UTMB). Please inform the Director, Dr. Dorian Coppenhaver, or the Administrative Manager, Jessica Linton of any discrepancies. It is recommended that this booklet be used in conjunction with the UTMB General Information Bulletin, Graduate School Catalog, and the New Student Information handbook.

I. FIRST-YEAR BASIC BIOMEDICAL SCIENCE CURRICULUM (BBSC)

The Basic Biomedical Science Curriculum (BBSC) is a specially designed first-year integrated curriculum for students wishing to pursue their doctoral research training in any of eight advanced Ph.D. graduate programs at UTMB.

The first-year BBSC provides a multiple disciplinary approach for educating future scientists across several modern biomedical research disciplines. Advanced studies, leading to completion of the Doctor of Philosophy degree, are offered in a wide range of areas of specialization in the Graduate School of Biomedical Sciences. Specific areas of research strength and graduate education at the University of Texas Medical Branch include:

- Aging
- Biochemistry, biophysics and structure of membrane proteins
- Bioinformatics and genomics
- Cancer biology and carcinogenesis
- Cellular physiology, signal transduction and hormone action
- Genetic and environmental toxicology, mutagenesis, DNA repair, DNA damage
- Immunology and host defenses
- Mechanisms of drug action, metabolism and toxicity
- Microbial and viral pathogenesis and infectious diseases
- Molecular biology, genetics and molecular virology
- Neural injury, regeneration, repair and pain
- Neurobiology and neuropharmacology
- Pathobiology and experimental pathology
- Reproductive biology and development
- Structure and function of macromolecules, structural biology
- Tropical and emerging diseases

These research areas are widely represented among the nationally and internationally known faculty who participate in six UTMB graduate programs, listed below:

- Biochemistry and Molecular Biology
- Cell Biology
- Experimental Pathology
- Microbiology and Immunology
- Neuroscience
- Pharmacology and Toxicology

II. FINANCIAL POLICIES AND BENEFITS

All students who are accepted into the BBSC will receive a graduate assistantship. Effective 2011-2012, students selected for graduate assistantship receive a stipend of \$27,000, in addition to health insurance coverage. Dental insurance is available for a small charge.

Pursuing a Ph.D. degree is considered a full-time endeavor. Students who receive an assistantship are not eligible to work in other units at UTMB. Employment outside UTMB is strongly discouraged. Questions concerning this policy should be discussed with the BBSC Director (Dr. Dorian Coppenhaver).

Time Accrual

Graduate students are paid under the job classification of graduate assistant, as a half-time classified employee. This job title does not allow the accrual of retirement benefits, vacation, or paid holidays. Sick leave is accrued at the rate of four hours a month. Students must inform the BBSC Administrative Office of any leave away from the campus, other than scheduled school holidays, during their first of year of coursework.

Health Insurance

A UTMB student appointed as a graduate assistant qualifies for the employee health insurance policy and receives premium sharing from the state and the Graduate School of Biomedical Sciences that pays the full policy premium. Coverage for spouse and/or dependent children is available at cost. Information about the policy is available from the Compensation and Benefits Division of the Department of Human Resources.

As a graduate assistant your health insurance is paid. However, standard student health insurance (United Health Care) is part of your student fees. **You must specifically decline United Health Care coverage online to avoid paying this fee. It is your responsibility to do this “opt-out”.**

Since you also have student health coverage, you may wonder when to go to Student Health, Employee Health, or your primary care provider. A useful reference for you to determine where you need to go for specific services, see matrix posted on the Student Health web page under “About Student Wellness (<http://www.utmb.edu/studentwellness/>).

Tuition and Fees

Students who are recipients of an assistantship, part of your financial package as an entering BBSC student, your tuition and fees will be paid directly to the Bursar’s Office by the GSBS for your first year of graduate studies at UTMB (i.e., Fall 2011, Spring 2012, and Summer 2012).

Chapter 54, Article 54.063 of the Texas Education Code, addresses teaching/research assistants and their ability (includes spouse and children of said student) to "register in a state institution of higher education by paying the tuition fees and other fees or charges required for Texas residents..." if "...the assistant is employed at least one-half time in a teaching or research assistant position which relates to the assistant's degree program under the rules and regulations established by the employer institution."

Retirement Benefits

Graduate assistants do not contribute to a retirement plan, nor do they receive any plan benefits.

FICA

Federal Income Compensation Act (FICA) is also known as social security. Individuals who hold a BBSC graduate assistantship are not subject to FICA withholding. (Note that any income above and beyond the graduate assistantship stipend voids this provision.) All students should check their payment to ensure that FICA is not taken out.

Federal Income Tax

Graduate assistantships are considered taxable income for purposes of the Internal Revenue Service. It is referred to as OASDI on the paycheck. A W-4 form must be on file. Tax information can be found at <http://www.irs.gov/>.

Paychecks

The University of Texas Medical Branch distributes payroll every other Friday for salary earned the previous two weeks. The first stipend bi-weekly check can be expected the next payroll period following the September 1st fiscal year. You can deposit your check in to as many as four different accounts through the Employee Self Service function. If the direct deposit is set up before payroll is processed, it will take effect immediately. If not, any printed paychecks will be mailed to the employment address the following Monday. The "Direct Deposit" form can be downloaded from <http://www.utmb.edu/finance/payrollservices/dirdeposit/default.asp> or can be picked up from the Bursar's office (2nd floor of the Administration Building). Two forms of identification and a blank deposit slip are required for activation. Employees who arrange to have their paycheck electronically deposited can verify it via the website – click on Employee Paycheck on the UTMB homepage.

The Office of Enrollment Services may be able to assist with short-term loans if funds are needed to meet expenses before the first paycheck is received. Their office is located on campus (2.110 Lee Hage Jamail Student Center) and can be reached at 409-772-1215.

Parking

Pre-tax parking is deducted directly from employees' paychecks. This deduction will not be subjected to Federal Withholding or Social Security/Medicare taxes. If interested in signing up for payroll-parking deduction, contact the Auxiliary Office (<http://www.utmb.edu/auxiliaryenterprises/ParkingFacilities/index.htm>). Payment of registration and badge fees is required before students can make any parking arrangements.

Funding Guidelines

An important component to biomedical science careers is the ability to obtain funding for research projects. It is a prestigious accomplishment to include on curriculum vitae. Students awarded extramural support equal to or greater than half

of the current stipend rate during their first year should notify the administrative coordinator. The GSBS provides an incentive to recognize such extraordinary efforts.

Funding Opportunities/Scholarships

There are a variety of scholarships available to graduate students, both open and restricted. The website, <http://gsbs.utmb.edu/aboutgsbs/awards.html> provides detailed information about these scholarships.

Other excellent sources of funding opportunities can be located at the Office of the Assistant Vice President for Research Funding Library, 4th Floor Rebecca Sealy Building – East End, Room 4.400 (ext. 69400) and the UTMB Yellow Sheet at <http://research.utmb.edu/research/yellowsheet/ysonline.htm>.

Bookstore Purchases

The UTMB bookstore is located in the Moody Medical Library. In previous years, the bookstore issues rebates for items marked books, merchandise, and scrubs on the cash register receipt, but must be \$1.00 or more excluding tax. Save all receipts for a possible rebate in August.

Hang on to your receipts whenever items are purchased from our bookstore. The bookstore will send out an email message to all students with directions for turning them in for a rebate check.

III. ADMINISTRATIVE ISSUES

A central structure exists to aid with any administrative issues. The administrative coordinator must be kept informed of any changes in enrollment status, both employment and coursework.

Contacts

Name	Role	Office	Phone	Email	Route
Dr. Dorian H. Coppenhaver	Director, Basic Biomedical Science Curriculum & Chairperson, BBSC Curriculum	4.429H Levin Hall	409-772-2665	dcoppenh@utmb.edu	1050

Jessica E. Linton	BBSC Administrative Manager	4.429F Levin Hall	409-772-5452; Toll-free within U.S.: 1-877-GAL- GSBS	jelinton@utmb.edu	1050
-------------------	-----------------------------------	----------------------	---	-------------------	------

Badges

Students who receive a graduate assistantship are also considered employees of UTMB with the employment title of Graduate Assistant. Although one badge is issued, the “Smart Card” recognizes student and employee status. This badge will be needed to access buildings located on campus, checking out books from the library, parking, field-house privileges, and other identification purposes. All badges must be returned when a student departs from the university.

Your employee badge can also be used around the island. Ask about discounts for UTMB employees. It can be used for free transportation for the island bus and trolley system any day or time of the week. For more information on the Discount with (UTMB) ID Program, visit the UTMB Human Resources page at <http://hr.utmb.edu/did/>.

Building Access

Security measures are taken on campus limiting access certain buildings. Numerous buildings on campus are locked after certain hours, and some remain locked (e.g., Keiller, Truman Blocker, Jr. Medical Research, and Libbie Moody Thompson Basic Science Buildings). The security entrance system requires your employee badges to be encoded for entry.

BBSC students will be given 8am-5pm access to the following buildings through the Summer 2018 term: Medical Research Building, Basic Science Building; and unlimited access (24 hrs/day, 7days/wk) to the following: Jamail Student Center (through Summer 2018) and William C. Levin Hall (through Summer 2012). There are four small break-out rooms on the 3rd floor of Levin Hall which may be used for studying, group projects, etc; also equipment for wireless computer access. Those rooms are 3.330, 3.332, 3.336, and 3.338. As long as classes are not being held in them, no reservation is needed.

During the second and third terms, students will need to extend, or request, access to a research building for laboratory rotations. Those arrangements, upon request, are made directly through the department in which the faculty member resides. Ask the lab manager for assistance. Be sure that they are aware that you are

already given access, but need it to be extended for the weekends or additional hours.

Mail

Campus mail is located in the main BBSC office, Room 4.429 Levin Hall. Students are encouraged to check it on a regular basis. Personal mail should be sent to your home residence. In completing forms or other campus business, the route number is 1050.

Telephones

The main telephone number for the BBSC Office is 772-5452. Another extension is 25456. Notification of any phone messages received for students in the main office will be sent via email.

The campus is on a five-digit phone system. To reach numbers outside of the UTMB campus, the caller must first dial "9", and then the seven-digit telephone number. Long-distance dialing can only be done with a UTMB telephone access code. These access codes are issued to individuals and control the billing for the telephone call charges. Graduate students are not normally issued telephone access codes during their first year.

Weather Emergency Policy

Galveston Island is a geographical area subject to hurricane threats. UTMB has developed Disaster Plans to implement appropriate procedures in the event of a hurricane. If the need for emergency transportation occurs, it is the student's obligation to obtain such transportation. UTMB is unable to provide shelter for students as all non-hospital buildings are closed in the hurricane preparation phase. The Academic Executive Council will formally dismiss students from all schools in the event of a hurricane threat – normally when a hurricane “warning” is announced. Please refer to the information posted on the web at http://www.utmb.edu/emergency_plan/.

Students are appointed with an employee title of Graduate Assistant which is classified as a non-essential employee. This is defined as “employees whose presence is not essential during a declared emergency status, but cannot leave until released by supervisor and must return to work as usual under routine operations after emergency status has ended.” In the event of an evacuation, students are responsible for making transportation arrangements off the island.

Our university also has a service, called “FirstCall”, whereby instant messages would be sent should an emergency situation arise. To get on this emergency alert notification list, you must register for it. For more instructions and further details about it, go to http://www.utmb.edu/emergency_plan/firstcall/.

Some other useful urls concerning weather emergency are as follows:

UTMB Weather Advisories – <https://galen.utmb.edu/weather/index.shtml>

UTMB Alert Page – <http://www.utmb.edu/alert/>

IHOP 7.1.8 Student Release During Emergency Weather -
http://intranet.utmb.edu/Policies_And_Procedures/Student_Policies/PNP_004988

Weather-related services are available by dialing 409-74STORM (409-747-8676) or tuning campus television to channel 37. Reports are also provided on radio stations, KGBC 1504 AM and KTRH 740 AM, and on area television stations.

IV. ACADEMIC REGULATIONS

Information provided here is only a brief overview of academic policies and procedures. Students are encouraged to review thoroughly the complete policies for academic matters, especially as described in section 4 of the GSBS Academic Policies. This document can be accessed at <http://gsbs.utmb.edu/pdf/BylawsandPolicies.pdf>.

Professionalism and Compliance

Professionalism should always be exercised, regardless of media used. This includes chat boards or in verbal conversations. There are rules and regulations to address inappropriate conduct violation. So as you progress through your graduate career, appropriate conduct is expected. More information can be found at <http://www.utmb.edu/compliance/> (and click on ‘Standards of Conduct’). Also see Appendix for Classroom Etiquette, along with Student Rights and Responsibilities.

Every student (and employee) is mandated to complete certain training to be compliant with the university. This is regulated by the federal government and no exceptions are made. You can find out what courses you are required to do and its deadline (by the end of the fiscal year, August 31), log online to the compliance area at <http://www.utmb.edu/compliance/> (and click ‘On-Line Training’).

Grades

For continuation in good standing from one semester to the next, the standards imposed by the Graduate School of Biomedical Sciences must be met. These are as follows: 1) achieving in each term a 3.0 average or above for all letter-graded courses and 2) satisfactory performance in all other courses each term. If these conditions are not met, students are placed on probation for the next semester.

Probation

If during the term in which the student is on probation he/she achieves a 3.0 average or above for all letter-graded courses and satisfactory performance in all other courses, the dean will remove the student from academic probation. Only with permission of the dean will a student be permitted to drop a course during any term that he/she is on probation.

Dismissal

Conditions for academic dismissal from the graduate school exist when a student (a) on probation fails to achieve a 3.0 GPA or above for all letter-graded courses and satisfactory performance in all other courses; (b) receives a second F, WF, or U grade; (c) a student receives a second grading symbol of "W" for the same course or more than two grades of "W" overall; or (d) fails to meet all requirements for admission to candidacy for a degree in a timely fashion as specified in Section 4.731 of the GSBS Academic Policies. The dean informs students in writing when they are dismissed from the graduate school. Students dismissed from the graduate school are not eligible for readmission. However, a student may formally appeal the dismissal decision.

Student Advisors

Students are assigned faculty advisors to assist students in determining the appropriate classes to take each semester, selecting the lab for rotations, and deciding on a graduate program for advanced coursework, as well as any problems students may encounter. Advisors will evaluate the performance of students during their progress during the first year. Students are encouraged to seek their advice at any point during the first-year curriculum. Some of the items that will be discussed are as follows:

- Coursework / Course Schedule
- Research Rotation Choices
- Grades
- Dissertation Advisor
- Selection of a Graduate Program
- Progress of Experiments

Drop/Add Policy For GSBS “Short Courses” That Begin After The Census Enrollment Date Of A Term

This policy applies to courses in the Graduate School that have a duration of less than the typical 16-week term and that begin after the twelfth class day of a term (tenth class day in the summer term). Such courses include numerous of the 8-week BBSC “electives” and courses in graduate programs that may be 8-10 weeks in length. State regulations regarding enrollment census dates impose certain limitations on the manner in which dropping or adding such “short courses” can be handled. The following guidelines and policies are designed to assist in understanding and operating under these rules.

- I. Students must register for all courses, regardless of duration or start-date, in an upcoming term during the normal period for registration before a term via myStar or other approved method of registration. Students may drop or add courses until the end of the twelfth class day of a term (tenth class day in the summer term), and appropriate adjustments will be made in their tuition and fee assessments.

A student must remain enrolled in a minimum of 9 credit hours throughout a term to be considered a full-time student. Loss of full-time status will result in loss of stipend support. Dropping or adding credits to a net of less than 9 hours at any time during a term will result in loss of stipend support. Loss of full-time status can also change the visa status of international students.

It is extremely important that students plan their schedules carefully and with the advice of the BBSC and Program Directors so as to develop the most appropriate and effective curricular plan and to minimize the necessity for dropping and adding courses after a term is underway.

- II. After the twelfth (tenth) class day (enrollment census date) of a term, a student may add or drop an 8-week BBSC elective or a “short course” in a specific graduate program that begins later in the term only under exceptional circumstances and with consent of his/her advisor(s).
 - A. Such a course may be added before the class begins or within the first five days after the class starts. Adding the course requires permission of the course co-director or instructor, the BBSC or Graduate Program Director (as appropriate), and the Graduate School of Biomedical Sciences. Students shall pay the additional costs in tuition and fees for each course added.
 - B. Such a course may be dropped before the course begins provided paperwork is processed by Friday of the week preceding the course start; to drop the course requires permission of the BBSC or Graduate Program Director (as appropriate) and the Graduate School of Biomedical Sciences. In this case, the course will not appear on the student’s transcript. Tuition and fees paid for the course are not charged when the course is dropped before it begins; appropriate reimbursement will be made if tuition and fees have already been paid. Students are cautioned to be certain that dropping the course does not lower their total credit-hour load to less than 9 hours as this will result in loss of the stipend.
 - C. Students may withdraw from such courses at anytime after the course begins through the final day of class of the course. To withdraw from the course requires (i) a brief written statement by the student explaining the reason for withdrawing from the course and (ii) signatures of the course director/instructor, the BBSC or Graduate Program Director (as appropriate) and the Graduate School of Biomedical Sciences. The GSBS Academic Policies (section 4.55, Adding and Dropping Courses) will apply in determining the final grade for the course (“W” or “WF”). Tuition and fees paid for the course are not reimbursable. Students are cautioned to be certain that dropping the course does not lower their total credit-hour load to less than 9 hours, and to note that the “W” option should only be used when absolutely necessary, since this grade cannot be used for the same course more than once and accumulating more than two “W” grades is grounds for dismissal from the Graduate School.

Other Rules and Regulations

Additional information about graduate school requirements can be found in the UTMB General Information Bulletin or on the GSBS web site. Nothing in the present document is meant to conflict with the information found in the Graduate School Catalog.

V. GRADUATE FACULTY MEMBERS

By the end of the Summer term of the first year, all students must join one of the six graduate programs (see page 6). This decision should be made with the assistance of an advisor and by consulting with one or more program directors. Students must inform the BBSC office, in writing, of their choice, including the approval from the program director, during the Summer term of their first year. A form to facilitate that process is provided by the BBSC. The BBSC will prepare the necessary paperwork to make the change official in the Office of Enrollment Services. **It is the responsibility of each student to identify a laboratory and mentor willing to provide support for their graduate research.**

There are numerous faculty appointed as members of the Graduate School of Biomedical Sciences. Information concerning their research interests can be found at the program web page at <http://gsbs.utmb.edu/faculty/list.asp>.

VI. COURSE SCHEDULE

Course Number	Credit Hours
YEAR 1 – Fall Term (I)	
BBSC 6401	Biochemistry 4
BBSC 6402	Cell Biology 4
BBSC 6195	Frontiers of Science 1
BBSC 6101	Academic Success Skills and Ethics 1
BBSC 6217	Laboratory Biosafety.....2
BBSC 6301	Laboratory Rotations (optional) .....3-6
Spring Term (II)	
BBSC 6403	Molecular Biology and Genetics..... 4
BBSC 6301	Laboratory Rotations (2) 6
BBSC 6195	Frontiers of Science 1
	*Electives 1-4
Summer Term (III)	
BBSC 6301	Laboratory Rotations (2) 6
MEHU 6101	Ethics in Scientific Research 1
BBSC 6122	Introduction to Biostatistics and Experimental Design In Basic Sciences..... 1
	*Electives 1-4

*A total of five credit hours is required.

YEARS 2-5

Graduate Programmatic Requirements, Electives and Dissertation Research through Graduation

The BBSC Academic Year 1 Calendar is provided in the Appendices, along with “Instructions for Writing Take-Home Assignment Answers”. The course descriptions are in the following section.

VII. BBSC COURSE OFFERINGS

The Basic Biomedical Science Curriculum (BBSC) is composed of three 16-week foundation courses (Biochemistry, Cell Biology, and Molecular Biology & Genetics), 8-week elective courses, four laboratory rotations, and a set of specialized courses and activities (ethics, seminar, statistics, orientation, and electives). The descriptions for each course are detailed on the following pages.

The first-year BBSC offers an extraordinary graduate experience that furnishes a strong foundation and breadth of biomedical concepts and provides a broad and in-depth foundation for advanced work.

All full-time students are required to take at least 9 credit hours per week of coursework in each of the three academic terms [I: Fall, II: Spring, III: Summer]. Listed below in numerical order are the BBSC course offerings. Descriptions for each can be found beginning on the next page. The second digit in the course number represents credit hours.

<u>Name of BBSC Course</u>	<u>Course No.</u>
Academic Success Skills and Ethics (Fall)	BBSC 6101
Introduction to the Study of Biological Systems (Summer)	BBSC 6103
Critical Reading of Scientific Literature (Fall, Spring, Summer)	BBSC 6104
Principles of Membrane Transport: Transport Processes in Epithelia (Spring)	BBSC 6109
Genes, Environment, and Disease (Summer)	BBSC 6118
Introduction to Biostatistics and Experimental Design in Basic Sciences (Summer)	BBSC 6122
Neuronal Transmission (Spring)	BBSC 6126
Frontiers of Science (Fall, Spring)	BBSC 6195
Microorganisms and Infectious Disease (Spring)	BBSC 6205
Introduction to Immune Mechanisms (Spring)	BBSC 6206

Neuronal Excitability (Summer)	BBSC 6207
Principles of Drug Action, Pharmacokinetics and Biotransformation (Spring)	BBSC 6208
Fundamentals of Inflammation (Summer)	BBSC 6210
Principles of CNS Sensory-Motor Integration (Summer)	BBSC 6214
Hormonal Signaling (Summer)	BBSC 6215
Mechanisms of Cancer Progression (Spring)	BBSC 6216
Principles of Laboratory Biosafety (Fall)	BBSC 6217
Neuroscience and Human Behavior (Spring)	BBSC 6218
Vaccine Development Pathway: From Discovery to Licensure (Summer)	BBSC 6219
Laboratory Rotation (Fall, Spring, Summer)	BBSC 6301
Biochemistry (Fall)	BBSC 6401
Cell Biology (Fall)	BBSC 6402
Molecular Biology and Genetics (Spring)	BBSC 6403
Current Topics in Cancer Research (Summer)	CELL 6212
Ethics in Scientific Research (Summer, administered by MEHU)	MEHU 6101

Required Courses

The Basic Biomedical Science Curriculum (BBSC) provides an integrated, multidisciplinary, first-year curriculum for students. The BBSC is composed of three sixteen-week foundation courses (Biochemistry, Cell Biology, and Molecular Biology & Genetics), a series of eight-week integrative electives, four to six laboratory rotations, and a set of specialized courses and activities (ethics, seminar, statistics, orientation, and electives).

The following are required foundation courses in the Basic Biomedical Science Curriculum:

BBSC 6401 - 4 credits

BIOCHEMISTRY

This is a required foundation course in the Basic Biomedical Science Curriculum (BBSC). The course deals with the fundamental forces that are the bases for molecular interactions, and the translation of these forces into the structure and function of proteins. Emphasis will be on the principles that give rise to these forces; on applying the principles to biochemical problems; and on the use of the principles in understanding macromolecular structure and function. The course also covers the basics of intermediary metabolism; the application of knowledge as to the fundamental forces that are the basis for molecular interaction; and the integration of these forces into regulation, synthesis and function of different biomolecules as they apply to developing an understanding of metabolism in homeostasis and disease. The course will have three lectures and two hours of small-group discussion and problem-solving sessions per week. Grades will be determined based on performance on written examinations and performance in small-group discussion sessions.

Prerequisites: College chemistry through organic, college physics and biochemistry recommended or consent of instructor

Term offered: I

Year offered: Annually

Hours per week: Lecture 3; Conference/Discussion 2

Instructors: Barral, Carney

BBSC 6402 - 4 credits

CELL BIOLOGY

This is a required foundation course in the Basic Biomedical Science Curriculum (BBSC). It is a sixteen-week course taught throughout the term to acquaint students with the basic principles of modern cell biology. The topics covered include regulation of basic cellular activities including functions of cell organelles, signaling, changes in cell numbers, interactions during development, and cellular organization into tissues. Grades will be based on the performance on in-class and take-home examinations based on lecture material, student participation in small-group discussion sessions of a research paper, and a laboratory exam.

Prerequisites: At least one-year college-level biology and chemistry; biochemistry recommended

Term offered: I

Year offered: Annually

Hours per week: Lecture 3-5; Conference/Discussion 2

Instructor: Cain, Lewis

BBSC 6403 - 4 credits

MOLECULAR BIOLOGY AND GENETICS

This is a required foundation course in the Basic Biomedical Science Curriculum (BBSC). It will consist of three lectures per week and two-hour discussion sessions every other week for a total of sixteen weeks. Topics include nucleic acid structure, DNA replication, genetic recombination, recombinant DNA technology, mutations and their repair, transcription and its regulation, translation, Mendelian inheritance, the human genome, microbial genetics, transgenic animals and models of human genetic disorders, and human evolution. Grades will be determined based on the performance on four examinations, graded problem sets, participation in small-group discussion sessions, and lecture attendance.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 3; Conference/Discussion 2

Instructor: Beasley, Pyles

The following are also required courses but are considered special activities:

BBSC 6101 - 1 credit

ACADEMIC SUCCESS SKILLS AND ETHICS

This is a required core course in the Basic Biomedical Science Curriculum (BBSC). Academic success is heavily dependent on scientific communication skills. Scientific communication is primarily comprised of three activities that occupy about 60 to 80 percent of the work time of professional scientists: reading, writing, and speaking. This course will provide practical tips, ethics and experience in (a) reading, writing and analysis of scientific literature; (b) visual and oral presentation skills; and (c) other skills for academic success. All work will be graded as satisfactory (S) or unsatisfactory (U). Final course grades will be based on the preparation and analysis of papers and presentations, class participation, and lecture attendance.

Prerequisites: None
Term offered: I
Year offered: Annually
Hours per week: Lecture 1
Instructor: Herzog

BBSC 6122 - 1 credit

INTRODUCTION TO BIOSTATISTICS AND EXPERIMENTAL DESIGN IN BASIC SCIENCES

This seven-week course is a required core course in the Basic Biomedical Science Curriculum (BBSC) and is a brief introduction to statistical thinking. Specific topics include over-view of basic summaries, probability and distributions, inference, experimental design and linear models. Grading will be based on the performance on homework, a take-home mid-term examination and an in-class examination.

Prerequisites: BBSC 6401, BBSC 6402, BBSC 6403 or consent of instructor
Term offered: III
Year offered: Annually
Hours per week: Lecture 3
Instructor: Spratt

BBSC 6195 - 1 credit

FRONTIERS OF SCIENCE

This is a required core course in the Basic Biomedical Science Curriculum (BBSC). It provides students the opportunity to hear about the latest advancements and techniques in a wide variety of biomedical sciences. Students are required to attend seminars by on- or off-campus speakers during each of the Fall and Spring terms. Students choose twelve seminars to attend on the basis of student interest and/or program recommendations with at least one from each of the participating

programs. In the Fall term, this course also orients students to the research opportunities available within the participating graduate programs. Attendance at the latter four-hour program fair is mandatory for all BBSC students. A required module on avoiding plagiarism and the proper use of citations and paraphrasing is part of the fall calendar. Grades will be satisfactory (S) or unsatisfactory (U) based on attendance.

Prerequisites: None
Term offered: I and II
Year offered: Annually
Hours per week: Seminar 1
Instructor: Coppenhaver

BBSC 6217 – 2 credits

PRINCIPLES OF LABORATORY BIOSAFETY

This course has been designed to include theoretical and practicum approach to biosafety for all students working in a laboratory. This course will focus on the BSL1-2 program with an introduction to BSL3. Topics will include risk assessment, personal protective equipment, proper use and selection of biological safety cabinets (BSCs) & chemical fume hoods, aerosol producing procedures, chemical safety, biological and chemical exposures, transport of biological materials, disinfection, waste handling and emergency laboratory procedures, regulatory requirements. Emphasis will be on development of competencies in fundamental laboratory techniques and using risk assessment to work safely and aseptically in the laboratory. This class will prepare students for future advancement opportunities into BSL 3 laboratories. The laboratory portion of the course will focus on organizing a biosafety cabinet (BSC) or fume hood, proper techniques in a BSC, preventing aerosols, transportation of biological material, disposing of wastes, and emergency procedures and decontamination. Grades will be based on attendance, participation, oral presentation and laboratory skills. Both classroom and laboratory components must be successfully completed to pass the course.

Prerequisites: None
Term offered: I
Year offered: Annually
Hours per week: Laboratory 2; Lecture 1.5
Instructor: Brocard

BBSC 6301 - 3 credits

LABORATORY ROTATION

This is a required core course in the Basic Biomedical Science Curriculum (BBSC). It is designed to provide students the opportunity to conduct laboratory experiments under the direct supervision of a faculty member. The primary objective of this course is to assist students in choosing their areas of dissertation specialization. Students in the BBSC are required to take four 8-week rotations in a minimum of two

independent laboratories during their first year in the BBSC. The time commitment is approximately 18 hours/week in the lab.

Prerequisites: None
Term offered: I, II, III with no more than nine credit hours (24 weeks) in one lab
Year offered: Annually
Hours per week: 18 hours/week in the lab
Instructor: Coppenhaver

MEHU 6101 - 1 credit

ETHICS IN SCIENTIFIC RESEARCH

This course is required of all graduate students. The course will employ small-group discussion to explore ethical issues in the conduct of scientific research. Students will meet with co-instructors from the Institute for Medical Humanities and the GSBS to discuss readings and cases dealing with the ethics of research; the ordinary practice of scientific research; and value conflicts that arise between scientists and society at large.

Prerequisites: None
Term offered: III
Year offered: Annually
Hours per week: Conference 1
Instructor: Vanderpool, Winslade

Integrative Elective Courses

Listed within this section are seven- or eight-week courses designated as electives. Students are required to take a minimum of five credit hours during their first year. The course descriptions for electives are as follows in numerical order.

BBSC 6109 - 1 credit

PRINCIPLES OF MEMBRANE TRANSPORT: TRANSPORT PROCESSES IN EPITHELIA

This eight-week course deals with biological transport at an intermediate level. The course is divided into two parts. Material in the first half of the course will be introduced via lectures. These lectures will deal with the fundamental principles that underlie epithelial transport. Topics to be covered include epithelial structure and function, fluorescence techniques, epithelial polarity, molecular biology, structure-function relationships and physiology of epithelial sodium and chloride channels, sodium-substrate transporters, and epithelial bacterial interaction. The second half of the course will be student presentations of selected articles. Topics will parallel the materials introduced via lecture. Grades will be based on participation, presentation of a research paper and an open book take-home examination. The student under the guidance of a course faculty member writes the take-home question.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 2

Instructor: Lewis

BBSC 6118 - 1 credit

GENES, ENVIRONMENT, AND DISEASE

This eight-week course will address key mechanisms for the development of human disease and, more importantly, the interrelationships between genetic characteristics and exposure to environmental factors or pharmaceuticals in modifying the risks of developing health problems. The course will be presented as a set of eight sessions which will include lectures as well as discussions of assigned research papers that address the objectives of the course. Students will be assigned papers for presentation in the class. Each two-hour weekly session will discuss two papers if a lecture is not given by the faculty. Background reading will be suggested for each discussion. At the end of the course each student will select a recent published journal article, with approval of the instructor, and will prepare a report that critiques the article and places it in the context of the information gained from the course. The four specific topic areas will be: 1) Mechanisms of DNA damage by endogenous and exogenous agents; 2) DNA damage response including signaling pathways, DNA repair, cell cycle

control and apoptosis; 3) The role of genetic variability in modifying responses to exposure to toxic substances and pharmaceuticals, and responses to DNA damage; and 4) The role of epigenetic effects and agents that modify them in determination of changes in gene expression, hormonal effects, and health outcomes. Grades will be calculated based on the performance of leadership in assigned paper discussions, participating in all discussions and report on published paper.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor
Term offered: III
Year offered: Annually
Hours per week: Lecture 1
Instructor: Abdel-Rahman

BBSC 6126 – 1 credit

NEURONAL TRANSMISSION

This course provides a general background in cellular neuroscience with an emphasis on neuronal synaptic transmission. The first part of the course covers structure and molecular composition of excitatory and inhibitory synapses. Topics covered include: synaptic structure and dynamics, molecular composition of post-synaptic ligand-gated ion channels, metabotropic receptors, signal transduction pathways, functional analysis of postsynaptic currents, synaptic plasticity and neuronal homeostasis. The second part of the course includes an in-depth reading and discussion of topics related to synaptic receptors mediating neuronal transmission in the central nervous system. This course will prepare students for upper level Neuroscience and Neuropharmacology courses and is also suitable for students interested in basic cellular mechanisms underlying brain function. Grading is based on written midterm and final examinations.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor
Term offered: II
Year offered: Annually
Hours per week: Lecture 1
Instructor: Laezza

BBSC 6205 - 2 credits

MICROORGANISMS AND INFECTIOUS DISEASE

This eight-week course will explore the importance of microorganisms as both living systems and disease causing agents. Topics will include discussion of selected, bacterial, parasitic, and viral infections, and mechanisms of disease pathogenesis, immunology, and host responses to the infection. It will explore the concepts of endosymbiosis (living entities needing each other) and how the new bioinformatics tools will help us to understand the genomes of disease-causing agents. It will also reveal the dynamics of populations, including spread and distribution of microorganisms, transmission, persistence, natural life cycles and host ranges. Additionally, host-pathogen interactions will be explored including mechanisms used by infectious organisms to gain entry, replicate and disseminate in the host, mechanisms of tissue injury and disease caused by intracellular pathogens, establishment of latent/persistent infections by non-cytopathic viruses and protozoan parasites, and acute inflammation and septic shock associated with bacterial infections. Material will be presented by lecture and group discussion. Grades will be based on performance on two examinations, class attendance, and participation in class discussions.

Prerequisites: BBSC 6206, BBSC 6401, BBSC 6402 or consent of instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 1.5, Conference/Discussion 1.5

Instructor: Garg, Wang

BBSC 6206 - 2 credits

INTRODUCTION TO IMMUNE MECHANISMS

This eight-week course will introduce the principles of basic immunology. Course content includes 1) development and function of cellular components (e.g., T and B lymphocytes, dendritic cells, macrophages) of the immune system, 2) innate and adaptive (humoral and cell-mediated) immune responses, 3) structure and function of important membrane (e.g., antigen receptors, cytokine receptors, major histocompatibility molecules), and soluble (e.g., cytokines, chemokines) molecules, 4) mechanism of induction of immune responses (i.e., antibody production, cytotoxic and helper functions) to infectious agents, as well as defective responses (immunodeficiency) and dysregulated responses (autoimmunity). Classes will be in the form of lectures, discussion of primary literature, and brief learning exercises. Grades will be based on participation and preparedness for discussions of primary literature, preparedness for team-based learning exercises, and two examinations.

Prerequisites: BBSC 6401, BBSC 6402 or consent of Instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 2, Conference/Discussion 1

Instructor: Sun, Wang

BBSC 6207 - 2 credits

NEURONAL EXCITABILITY

This eight-week course deals with fundamental concepts that underlie electrical excitability, conduction of electrical activity and presynaptic mechanisms. Topics covered include electrochemical potentials, properties of voltage-gated channels, electrotonic spread vs. propagated activity, regulation of exocytosis, quantal analysis of transmitter release and analytical techniques including current and voltage clamp, single channel recording and noise analysis. The class will be presented as lectures with student discussion. Grades will be based on class participation and examinations.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor

Term offered: III

Year offered: Annually

Hours per week: Lecture 3, Conference/Discussion 1

Instructor: Hamill

BBSC 6208 - 2 credits

PRINCIPLES OF DRUG ACTION, PHARMACOKINETICS AND BIOTRANSFORMATION

This eight-week course will cover the principles underlying drug and toxin mechanisms of action, as well as their metabolism and clearance. In particular, we will focus on mechanisms underlying the interaction between hormone and neurotransmitter receptors and full, partial, and inverse agonists, as well as analysis of the mechanisms underlying the actions of competitive, partially competitive and non-competitive inhibitors. Additionally, the mechanisms underlying allosteric modulation by drugs and endogenous ligands will be discussed along with how receptor activation engages underlying effector mechanisms. The latter portion of the course will focus on the mechanisms underlying absorption, distribution, elimination and metabolism of both toxins and therapeutic drugs. This will include metabolism by phase I and phase II enzymes, glutathione reductase, as well as drug elimination, duration of action, plateau principle, and continuous and intermittent dosing paradigms. The course will be taught primarily in lecture format with discussion of primary research articles. Grading will be based on class participation, homework problems, two written exams and a 15-minute oral presentation covering the similarities and differences between a pair of drugs that have similar therapeutic goals.

Prerequisites: BBSC 6401, BBSC 6402 or consent of instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 3, Conference/Discussion 1

Instructor: Johnson, Snodgrass

BBSC 6210 - 2 credits

FUNDAMENTALS OF INFLAMMATION

This seven-week course deals with fundamental concepts pertaining to inflammation. Inflammation plays a necessary role in wound healing and tissue surveillance, but can also lead to chronic wounds and pathologic states such as inflammatory bowel disease. By moving fluids and white blood cells from the blood into extravascular tissues the host can eliminate abnormal cells, foreign particles, microorganisms, etc. and initiate repair processes. Topics include inflammatory cells, the role that pathogens (bacterial, viral and parasitic) play in inflammation, the mediators (lipids, cytokines, peptides, and other molecules) and cellular events involved in cell recruitment and movement through the vessel wall into tissue spaces. Common inflammatory processes and wound healing will be discussed. Grades will be determined by performance in the discussion of current literature and on one take-home short-essay exam.

Prerequisites: BBSC 6401, BBSC 6402, BBSC 6403 or consent of instructor

Term offered: III

Year offered: Annually

Hours per week: Lecture 3; Conference/Discussion 1

Instructor: Hawkins, Midori-Horiuti, Reyes

BBSC 6214 - 2 credits

PRINCIPLES OF CNS SENSORY-MOTOR INTEGRATION

This eight-week course introduces students to fundamental organizing and operating principles utilized by a central nervous system to integrate sensory information and produce an appropriate motor output. The model system to be utilized is the central nervous system of the medicinal leech and an ensemble of identified sensory, motor and interneurons that are organized to produce a complex swimming locomotor behavior. Anatomical and physiological features of the circuitry, including electrophysiological interactions of neurons, and their applicability to nervous systems generally will be analyzed. Concepts such as "identified cells", receptive fields, parallel and serial processing, synaptic integration, central pattern generators, trigger cells, command cells, hierarchical cascades of circuit organization, motor control and, neural basis of behavior will be examined. The teaching method will consist of reading and discussing in detail a series of some 25 papers from the original literature (usually two papers per class session) that trace the history of the development of this system, from descriptions of single sensory and motor neurons to the full central circuitry for producing locomotion. Grading will be based on class participation and on the production of a complete circuit diagram of all the neural elements of the control system and their interactions.

Prerequisites: BBSC 6207, BBSC 6401, BBSC 6402, BBSC 6403
or consent of instructor

Term offered: III

Year offered: Annually
Hours per week: Conference/Discussion 4
Instructor: Hamill

BBSC 6215 - 2 credits
HORMONAL SIGNALING

This eight-week course deals with hormonal signaling and endocrinology treated at an intermediate level. After the introductory lecture providing an overview of endocrinology, each subsequent topic will consist of a lecture(s) followed by a review of a paper or papers from the literature which illustrate or extend concepts presented in the lecture(s). The second and third lectures will deal with details of the two major receptor formats employed in hormonal signaling (steroid and peptide). The next group of lectures will be on topics of broad applicability to hormonal signaling, such as development. Student grades will be dependent equally upon (1) instructors' grading of their contribution to the scientific paper presentations and discussions and (2) a final take-home exam consisting of essay questions which may integrate material from the entire course.

Prerequisites: BBSC 6401, BBSC 6402, BBSC 6403 or consent of instructor
Term offered: III
Year offered: Annually
Hours per week: Lecture 3 Conference/Discussion .5
Instructor: Watson

BBSC 6216 – 2 credits
MECHANISMS OF CANCER PROGRESSION

This eight-week course will provide a basic foundation of knowledge about the molecular, cellular, and systematic mechanisms mediating the development, progression and spread of cancer. The different concepts in cancer biology will be covered in a didactic lecture/discussion format and with take-home problem sets. Course content will be based mainly on review type articles selected from the recent basic science and clinical literature. Class will be held twice weekly (2 hr per class) for 8 weeks. Each two hour classroom session will involve a student-lead discussion of the take-home problem set as well as a faculty lecture. Discussion and lecture topics will cover both the theoretical concepts and experimental methodologies. Student grades will be based on two written, in-class, examinations, and classroom participation/take-home problem sets.

Prerequisites: Graduate level Cell Biology or equivalent
Term offered: II
Year offered: Annually
Hours per week: Lecture 2, Conference/Discussion 2
Instructor: Hellmich

BBSC 6218 – 2 credits

NEUROSCIENCE AND HUMAN BEHAVIOR

This eight-week course will prepare students for future work in research areas that require the integration of basic biological techniques and concepts at the systems level to address translational questions. It offers the opportunity to learn the basic principles of neuroanatomy and neurophysiology, to appreciate the functional organization of the nervous system, and to be introduced to basic neurochemical and physiological processes underlying nerve cell function and behavior. Lectures will provide a general background in the basic functions of nerve cells and major functions of nervous system components (sensory, motor, limbic, cortical and integrative centers), and the effect of disease or injury on nervous system function. The small-group component will allow the practical study of major pathways and structures of the nervous system to understand its organization and function, using histology slides and brain specimen. Grading will be based on the performance of a final oral exam (laboratory practical).

Prerequisites: BBSC 6401 and BBSC 6402, or consent of instructor

Term offered: II

Year offered: Annually

Hours per week: Lecture 2, Conference/Discussion 2

Instructor: Neugebauer

BBSC 6219 – 2 credits

VACCINE DEVELOPMENT PATHWAY: FROM DISCOVERY TO LICENSURE

This eight-week introductory course will be taught in lecture format with a small number of expert lecturers. The course is designed to provide the basic scientist with an understanding of vaccine development from conceptualization through development, testing, and utilization. This multidisciplinary course was designed to introduce students to all of the aspects of vaccine development and utilization to include aspects of vaccines for infectious diseases and chronic non-infectious diseases (e.g., cancer, neurodegenerative diseases, and addiction). Grades will be based on performance of two examinations and class attendance.

Prerequisites: BBSC 6401, BBSC 6402, BBSC 6403, or consent of instructor

Term offered: III

Year offered: Annually

Hours per week: Lecture 2, Conference/Discussion 2

Instructor: Barrett, Milligan

CELL 6212 – 2 credits

CURRENT TRENDS IN CANCER RESEARCH

The objective of this course is to introduce students to the molecular basis of cancer progression through analysis of the current literature. Papers will be chosen by the instructor with input from the students. One student will prepare a PowerPoint presentation of the figures of the paper to be discussed, and all students will participate in analyzing the paper. The format will be informal, but all students are expected to have read the paper and participate in the discussion. The development of critical thinking skills will be emphasized. If for any reason a class is missed (or the paper is not read), a one page “news and views” type article summarizing the paper will be required for full credit. This class will be graded S/U.

Prerequisites: BBSC 6401, BBSC 6402, BBSC 6403, or consent of instructor
Term offered: III
Year offered: Annually
Hours per week: Lecture 2, Conference/Discussion 2
Instructor: Boehning

Other Courses

Listed below are two seven-week courses designated as optional in which students can opt to take prior to their first year. However, they **cannot** be counted towards the first-year course elective requirements. The course description is provided, as follows.

BBSC 6103 - 1 credit

INTRODUCTION TO THE STUDY OF BIOLOGICAL SYSTEMS

This seven-week course is designed to introduce graduate students to the study of biological systems, with specific emphasis on fundamental biochemistry principles. The course provides a review of the chemical structures of biomolecules, as well as the noncovalent forces underlying biomolecular structure, function and interaction. Course topics include macromolecule-solvent interactions, pH and dissociation, quantitative descriptions of biochemical equilibria, and laboratory strategies involving protein manipulation and purification. Basic thermodynamic principles are presented, including the concept of the free energy of a reaction as it relates to the synthesis, metabolism, and function of biomolecules. The format of the course includes lectures and problem-solving sessions. Students are expected to lead class discussions following the completion of assigned homework, and grades will be satisfactory (S) or unsatisfactory (U) based on completion of assignments and classroom participation.

Prerequisites: By Permission Only

Term offered: III

Year offered: Annually

Hours per week: Lecture 1.5, Conference/Discussion 1.5

Instructor: Coppenhaver

BBSC 6104 - 1 credit

CRITICAL READING OF SCIENTIFIC LITERATURE

This seven-week course is designed to introduce graduate students to critical concepts involved in understanding scientific literature. Emphasis will be placed on analyzing, comprehending, interpreting and evaluating scientific articles from peer-reviewed journals. This class is based on discussion format, and students will be expected to actively participate in classroom discussions, as well as lead one classroom discussion on an article of their choice. Grades will be satisfactory (S) or unsatisfactory (U) based on participation.

Prerequisites: By Permission Only

Term offered: I, II, III

Year offered: Annually

Hours per week: Lecture 1, Conference/Discussion 2

Instructor: Coppenhaver

APPENDICES

INSTRUCTIONS FOR WRITING TAKE-HOME ASSIGNMENT ANSWERS

Disclaimer:

These instructions are applicable to all BBSC courses.

Unless instructed otherwise, take-home assignments are to be your individual effort.

Answers must be typed, single-spaced with 1-inch margins on all sides (minimum of 11- pitch font) using the "Word" word processing program and electronically submitted. All take-home exams will be reviewed using plagiarism detection software.

Answers should usually be 1-3 pages long, unless instructors' specify a different limit. Diagrams may be included in answers. Diagrams can be hand-drawn or drawn using Microsoft Word or PowerPoint.

A. Rules For Citations

Write your answers in the format of the Introduction section of a scientific article. Please abide by the following simple rules in providing appropriate citations in your answers:

1. If you copy word-for-word from another source, you must put the sentence(s) you copy in quotation marks ("-----") and provide the reference(s). Please be aware that direct quotations are rarely used in scientific writing. Only occasionally is a particularly eloquent definition or passage quoted directly. An exam answer with numerous direct quotations will not be acceptable even if the quotations are properly referenced because such an answer would not be an original work of the student.
2. If you paraphrase from another source, you should not put your paraphrase in quotation marks, but you still must provide a full citation. The rule of thumb about citations is that anytime you express an idea that you have taken from another person's work, you must give the proper citation.

3. If you copy a figure, or part of a figure, directly from another source, a citation must be provided in the figure legend.
4. If you modify a figure, or part of a figure, taken from another source, you must give proper credit by stating "Modified from -----" (citation) in the figure legend.

B. Styles For Referencing

There are many different styles of referencing and writing citations, but to have a consistent format for citations in this course, use the following style:

1. The citations are to be represented in the text of your answer by last name(s), date in parentheses that are placed immediately after the quotation, paraphrase, or figure legend.
2. The complete list of full references should be given at the end of your answer in numerical sequence. The full references should include: last name and first initial of all author(s), year of publication, title of publication, journal name, journal volume and inclusive page numbers.

Examples

For a Journal: Student, A., Student, B., Student, C. (2001) How to get an A in the Cell Biology Course. BBSC Cell Biol. J. 100, 190-201.

For a Book Chapter: Student, A., Student, B., Student, C. (2001) How to get A's in the core courses. In: The Basic Biomedical Science Curriculum Revealed. Watson, CS, Chan, LL, and Smith, EM, editors. Fantastic Scholar Press, Hoboken NJ, pp. 1-50.

3. Make sure the style is consistent throughout your list of references.

C. Lecture Citations

If a direct quote is used from a lecture or handout, it should be generally cited ("As Dr. Smith said in class, ..."). If it is just using the information from the handout/lecture, then it is generally known information in the context of that class, given to and discussed for the whole class, and thus it does not need citation.

IMPORTANT:

Proper attribution of sources is required by our Honor Code and is essential aspect of scientific writing. If there is any doubt about how to refer to the work of others, please discuss this with the course director or Dr. Coppenhaver before handing in the assignment.

GUIDELINES FOR FILING A WRITTEN COMPLAINT

Students have a right and responsibility to report issues of concern. This may be done either verbally, in writing or by using the Professionalism button on the UTMB Web.

The Student Affairs Officer of each school, the Associate Vice President for Student Services, the Students' Ombudsman and the Director of Office of Equal Opportunity and Diversity (OEOD) can provide guidance with any of the issues listed below.

Seeking Assistance. The Student Non-Academic Grievance Procedures (IHOP Policy 7.1.14) outlines the general procedures to be followed should a student wish to file a formal grievance.

Discrimination. Written allegations of violations of the UTMB Nondiscrimination Policy (IHOP Policy 3.2.3) should be filed with the OEOD.

Sexual Harassment. Written allegations of violations of the Sexual Harassment and Misconduct Policy (IHOP Policy 3.2.4) should be filed with the OEOD.

Sexual Assault. In cases of Sexual Assault (UTMB IHOP Policy 7.1.12), campus or local police should be notified immediately

Other Non Academic Issues. Written allegations of the Other Non-academic Concerns (IHOP Policy 7.1.13) should be submitted to the School of Nursing Associate Dean for Student Affairs/Admissions.

American with Disability Act. Formal written complaints pertaining to Violations of the Students with Disabilities Policy (IHOP 7.1.1) can be filed with any of the individuals listed above. Ultimate responsibility rests with the OEOD.

Conduct and Discipline. Written allegations of violations of the Student Conduct and Discipline Policy (IHOP Policy 7.1.3) should be submitted to the Student Affairs Officer of the appropriate school.

Faculty Issues. Students are encouraged to seek guidance from the Student Affairs Officer or the Student Ombudsman to determine the appropriate route for the formal written complaint.

HANDBOOKS AND CALENDARS

Refer to the urls provided below for the most recent information for the Graduate School (GSBS) or for the Basic Biomedical Science Curriculum (BBSC).

HANDBOOKS

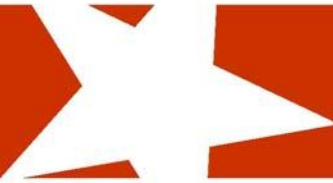
http://www.gsbs.utmb.edu/handbooks/gsbs_handbook.asp

ACADEMIC CALENDARS

<http://www.gsbs.utmb.edu/calendars/default.asp#gsbscal>

The current version of the BBSC Year 1 Calendar (Fall 2011 - Summer 2012) is on the next page. During orientation, you were provided the GSBS calendar.

Classroom Etiquette for UTMB Professional Students



These guidelines have been developed by students to promote a better classroom experience for learning and teaching. We hope that an initial discussion at the beginning of each semester will establish clear expectations that are publicly agreed to by all. These are customary standards for professional students, but may be edited or expanded by consensus to fit appropriately.

- Arriving late and/or leaving early is disruptive and inconsiderate of your colleagues and faculty.
- Be quiet and courteous to others. All side conversations are distracting and unfair to other learners.
- Turn off cell phones (or place on silent mode). Do not answer it in class.
- Be engaged in your learning.
- Doing other work or sleeping in class is not participating in class.
- Eating in class is inconsiderate - if it is noisy, messy or too aromatic.

- Students of the Honor Pledge Committee -

Office of University Student Services
2.116 Lee Hage Jamall Student Center
301 University Boulevard
Galveston, Texas 77555-1316



Student Rights & Responsibilities



This document is an effort to succinctly list some pertinent responsibilities and rights that are covered in many institutional student policies. This document also includes expectations that address the educational environment and promote campus collegiality. This statement does not replace existing policies governing conduct and discipline or change the consequences.

Students have the right to:

- Campus facilities that promote successful student outcomes in learning and testing experiences
- A campus environment where academic integrity can thrive
- A timely appeal process
- A presumption of innocence if accused of wrongdoing
- A timely grading process
- Confidentiality in the hearing process
- Respectful treatment from faculty, staff and fellow students
- Participate in the constructive evaluation of faculty and curriculum
- A campus environment that is safe and where both physical and intellectual property rights are respected.

Students will:

- Refrain from all forms of cheating including misappropriation in their own work
- Neither facilitate nor tolerate academic dishonesty
- Uphold university standards of behavior that do not violate the Regents' *Rules and Regulations*, institutional rules, or federal, state, or local laws whether such conduct takes place on or off campus
- Uphold the highest standard of confidentiality with respect to information about patients, clients, or research subjects
- Eschew the use of pressure, threat, abuse, bribery or other practices in order to gain undue advantage
- Be courteous and considerate to faculty and classmates in the classroom by refraining from conversation and other distractions (e.g. cell phones, tardiness)
- Be respectful
- Report violations of the Honor Pledge, UTMB Conduct and Discipline Rules or Professionalism Charter in order to improve the educational, patient care and work environment
- Be receptive to constructive criticism and dialogue about their professional development
- Assume responsibility and initiative for their learning.