PhD in Integrated Biomedical Sciences
Graduate College
Rush University
A Manual for Students and Faculty
Academic Year 2017-2018

Contents:

Rush University PhD in Integrated Biomedical Sciences

Program Description:

The PhD in Integrated Biomedical Sciences is designed to educate science professionals for excellence in research and academic positions, as well as provide career path education relevant to their specialized field. Graduates of this program will be prepared to perform high quality, impactful biomedical research at colleges and universities, government agencies, hospitals, non-profit agencies and industries. Students in the program will work with faculty to generate new knowledge in the fields of biomedicine.

The PhD in Integrated Biomedical Sciences is designed to be completed in five years and requires completion of **80 semester hours (SH) of credit**, which is distributed as core courses (37SH), track specific cognates (16SH), electives (9SH), and dissertation research (18SH), successful completion of a cumulative writing exam and an oral and written qualifying exam based on the student's research proposal. Students must also write a dissertation that presents their original research study and they must present this research to the public and defend it before an examination committee. The final requirement for the PhD degree is publication of a first authored paper, which describes their research in a peer-reviewed journal.

The core curriculum is common to all students; it builds knowledge and skills in research theory and methodology, data analysis and statistics, laboratory applications and skills, and the molecular and cellular sciences basic to health and disease. These courses will provide systematic exposure to the contemporary process of scientific discovery and will serve as the basis for the remainder of the curriculum. In addition, students will be required, in conjunction with their advisors, to select from concentration focused cognates in one of five tracks: Translational Cancer Research; Cardiovascular and Respiratory Biology; Immunity, Infection & Inflammation Research; Function & Disorders of the Musculoskeletal System; and Function & Disorders of the Nervous System. All students will be required to participate in track specific Advanced Topic Seminars that beginning in their second year of study. They will complete a minimum of 18SH of dissertation research (GCC 699). The number of dissertation hours required is consistent across all of the tracks within the Integrated Biomedical Sciences PhD program. In addition to developing and defending a dissertation project, dissertation research also includes time spent analyzing data, writing manuscripts, practicing presentation skills and presenting and defending research findings within the university and at national and international conferences.

Program Goals:

(1) Develop individuals who can formulate appropriate research questions, organize and test hypotheses, and apply research results to biomedical sciences.

(2) Prepare competent biomedical science professionals at the doctoral level with interdisciplinary knowledge and inter-professional experiences who can successfully lead research teams in areas of basic science translational to healthcare.

(3) Provide training in professional skill development enabling the graduates to assume leadership roles as researchers, educators and administrators in their specialized field.

The program consists of 80 semester hours, distributed as core courses, concentration specific cognates, electives and dissertation research. Student progress will be evaluated and monitored by the faculty advisor and an interdisciplinary Dissertation Committee that is comprised of faculty members with expertise in the selected area of research. The completion and defense of a research dissertation and publication of the findings in a peer-reviewed journal are required for degree conferral. Recipients of the PhD degree in Integrated Biomedical Sciences will demonstrate the capability to conduct independent research that contributes to and expands knowledge in the biomedical sciences.

(4) Enable students to find satisfying careers in the biomedical sciences. Student will create Individual Development Plans (IDP) to better define their areas of interest including teaching, administration, research in industry, or academic research during the first year and will

continue to actively explore career opportunities and create career development goals throughout the rest of their graduate career. This will include use of the AAAS IDP website, attendance at special seminars and events hosted by the graduate program at Rush and other nearby Institutions, and active pursuit of opportunities that will provide exposure to experiences related to career goals. Upon graduation, the graduate will use the IDP to refine their career interests and will have benefited from mentorship and training opportunities in their chosen career paths.

Student Learning Outcomes:

1) Contribute to the body of knowledge in the biomedical sciences through critical inquiry, scientific reasoning and scholarly pursuits
   a) The graduate will be able to approach a research or clinical problem from a variety of disciplinary perspectives, accounting for the published literature that illuminates the molecular, cellular and organ systems manifestations of the disease process.
   b) The graduate will gain an in depth knowledge in a specific area of research; e.g. Translational Cancer Research; Cardiovascular and Respiratory Biology; Immunity, Infection & Inflammation Research; Function & Disorder of the Musculoskeletal System; or Function & Disorders of the Nervous System.
   c) A graduating student will be capable of independent critical thinking and writing as well as proposing, performing and effectively presenting his/her research.
2) Conduct research that adheres to ethical principles and professional standards
   a) The graduate is able to articulate and apply ethical principles in research including the necessity for animal and human protections.
   b) The graduate will be able to acquire research skills, collect and analyze data, and interpret results, and propose experiments in order to address an original research question.
3) Collaborate with multidisciplinary teams in the design, conduct and dissemination of biomedical research
   a) The graduate will be able to work collaboratively with other scientists, physicians and health care professionals.
   b) The graduate will have acquired the skills to present scientific data in seminars at regional and national meetings and in written scientific publications.
   c) The graduate will be able to interact with other scientists, clinicians, and health care professionals to give and obtain feedback concerning the approach to research problems, data analysis and implications of research.
4) Promote translational research in the biomedical sciences through scholarly publications and presentations
   a) The graduate will be able to contribute to the scientific literature in an area of expertise via published abstracts, a dissertation and by the publication of a first authored research article in a peer-reviewed journal

Registration:

Initial registration can occur in the months preceding the start of classes. Registration for entering students can be done at the time of orientation. Places in classes are saved for all incoming students. **Subsequent registration:** Registration times for continuing students are specified in the University timetable (available from the Registrar's website). The student will also be notified when registration is due by email and is required to register within the indicated timeframe. This is usually 2-3 months before the start of classes. **There is a $50 fee for late registration.** There is an additional late fee of $50 if the students register after classes start. **Students may begin registration and make changes using Drop/Add privileges, which will not incur a fee.**

In the first year, students should register for the courses listed in the year 1 curriculum. Questions about registration should be addressed to the Program Director or Associate Program Director. Students with advance standing may take more hours of Laboratory Rotation and may take electives that fit in their schedule. If they have questions they should meet with the Program Director or Associate Program Director prior to registration.

Students who have progressed to the point where they are eligible to select a track should discuss course selection with their Track Director and their potential advisor prior to registration.

Immediately following online registration, all students must submit a paper copy of their registration to the Graduate College Office.

Expectations:

Students are expected to become independent critical thinkers who are able to effectively present their research in oral and written formats.

The Graduate College requires that all students remain in good academic standing by maintaining at least a "B" (3.0) average. Failure to do so will result in the student being placed on probation and, if the student does not regain a B average following one semester of probation, they may lose their stipend. For more information see the Academic Standing section of the University Catalog in the appendix.

All outside employment is strongly discouraged and requires express approval by the Graduate College. This excludes activities that would be in line with IDP goals like tutoring, teaching and proctoring.

Students are expected to conduct themselves in a professional manner. This includes respecting the rights of others and being kind and courteous to students, faculty and patients. Intimidation of other students and staff will not be tolerated and is grounds for dismissal. All students are expected to sign and abide by the University Honor Code. Actions that violate the University Policy on Academic Honesty and Student Conduct (see appendix) should be reported to the Honor Code committee. The Honor Code is also listed in the appendix along with the bylaws for the Honor Code Committee. The Graduate College Honor Code Committee bylaws contain information on reporting infractions and how such reports are handled.

Sexual harassment as well as harassment related to race, color, religion, sexual orientation, national origin, ancestry, age, marital or parental status, or disability is prohibited. The University Catalog details the policies regarding inclusion of minorities and those with disabilities as wells as the policies and procedures for reporting harassment. All issues regarding sexual harassment as well as harassment related to race, color, religion, sexual orientation, national origin, ancestry, age, marital or parental status, or disability are covered under University Policy and are referred directly to the Office for Equal Opportunity (See University Harassment policy in the appendix).

Students working with laboratory animals must follow IACUC guidelines and will be subject to disciplinary action in the case of abuse.

Evaluation:

The Graduate College is actively evaluating the program. Please respond to surveys and to course evaluations in a thoughtful and constructive manner. Such good faith participation is needed to help us improve the educational experience and outcomes for both current and future students. In order for such changes to be beneficial, we need honest and professional feedback from you.

Changes to the Program:

You may be affected by changes to the program during your studies due to changes in policy or course offerings. Changes in policy may be necessary to bring the program in line with changes in Graduate College and or University policies. You will be notified in writing or by email of any program changes, and such notification will override the contents of this manual.

Changes to the curriculum may include revision of courses or the addition or deletion of particular courses. Students will be notified in writing or by email of the changes and may be required to take the new or replacement courses. However, curriculum changes will not be made retroactively. For example, changes in the first-year curriculum will not affect second year students. Likewise, students who have already taken a course will not be required to take the replacement for that course unless that course has changed substantially.

Organization of the Integrated Biomedical Sciences PhD Program

Program Director:

For first year students, the Program Director is the "go to" person for questions and concerns with the program. The Program Director will approve your registration during the first year. The Program Director chairs the Education Committee, oversees the Track Directors and is responsible for the overall execution of the program. Therefore, the Program Director is very interested in feedback concerning curriculum and student life issues. Your input helps us do our jobs better!

As the student moves into the second year, the Track Directors and the Research Advisor are responsible for advice regarding course registration and programs of study. However, the Program Director is available for student consultation and may be contacted directly.

Associate Program Director:

The Associate Program Director is concerned with the implementation and evaluation of the first year, integrated curriculum. He/she is also Course Director of GCC 531 and GCC 532 which together are the Cumulative Exam. If the Program Director is not available the Associate Program Director will temporarily assume the duties of the Program Director.

Assistant Program Director & Program Director of the IBS MS Program:

The Assistant Program Director works with the IBS Education Committee, the Program Director and the Associate Program Director to develop and monitor the curriculum and student progress. He/she is the "go to" person for the questions and concerns of the IBS MS students and will approve IBS MS student registration during the first year and work with the MS students to place them in research labs. At that point the Track Directors and PIs will guide the student's but the Assistant Program Director is responsible for the overall execution of the MS program.

Track Directors:

The Tracks are: Translational Cancer Research (CAN); Cardiovascular and Respiratory Biology (CVR); Immunity, Infection & Inflammation Research (III); Function & Disorders of the Musculoskeletal System (MSK); and Function & Disorders of the Nervous System (NEU).

The Track Director will help oversee the students once they have chosen their track to assure there is timely progression towards degree completion within 2-5 years. This includes ensuring that the student follows a proper plan of study fulfilling track requirements, cognates and electives; assuring that the student has an IDP and that the selection of courses meets their objectives; and helping the student in the formation of a dissertation committee that meets as required by the Graduate College. The Track Director will work in close communication with the Research Advisor to assess student progression by annual meetings (progress reports) and when possible participating in meetings of the dissertation committee. The Track Director, Program Director, Associate Program Director, Assistant Program Director or another Track Director will serve as an Ex Officio Member of the student's Qualifying exam and Dissertation Defense.

Integrated Biomedical Science Education Committee:

The IBS Education Committee is composed of the Program Director, the Associate Program Director, the Assistant Program Director (who is also the Program Director for the MS Program), the Track Directors, a student representative, and two at large faculty representatives. The IBS Education Committee is chaired by the Program Director. In the event of the absence of the Program Director the Associate Program Director should chair the meeting. This Committee appoints an Admission Committee that makes recommendations for admission to the Dean of the Graduate College. The Committee evaluates student feedback and recommends changes to the curriculum. The IBS Education Committee also evaluates the results of the qualifying exams for the PhD students, hears appeals on the remediation of grades and complaints concerning academic dishonesty, non-professional behavior and student misconduct that are not covered in the University Harassment Policy. All issues regarding harassment are referred directly to the Office of Equal Opportunity of the University.

Graduate College Council

The Graduate College Council is the senior representative body for The Graduate College. The Council is comprised of all Program Directors, an elected representative from each program/division, and three elected student representatives. Only elected members are allowed to vote. The Graduate College Council considers issues and topics such as the Graduate College Curriculum that affect all graduate programs. The Graduate College Council meets monthly on the first Thursday and is chaired by a Graduate College faculty member.

Graduate College Student Council (GCSC)

President: Matt Russo, Matthew_L_Russo@rush.edu

Vice President: Terese Geraghty, Terese_Geraghty@rush.edu

Faculty Advisor: Nell Lurain, PhD, Nell_Lurain@rush.edu

The Graduate College Student Council is an open forum for graduate students (MS or PhD). Meetings are convened and run by elected graduate student representatives. Students to discuss concerns related to the graduate college, including the curriculum, insurance, academic matters, fund raising, degree requirements, professional development opportunities, community engagement and anything else that becomes a student concern. All issues raised at these meetings will be brought to the attention of the Graduate College Council. Also, the GCSC coordinates awards given to the faculty by the graduate students (Mentor of the Year and Excellence in Teaching Award). We encourage all students to participate because your input is essential. Students serving on the council are provided the opportunity to take an active role in college governance; serving as liaisons who interact between the student body, the Graduate College, and the University.

Also, as part of a community of science professionals, the Graduate College Student Council should partake in university or community outreach programs such as fund-raisers, elementary school science demonstrations, and philanthropic work deemed appropriate by the members of the council that year. In more recent years, the GCSC have instituted the *Emerald Event*, their largest fund-raiser for the students of the Graduate College to attend scientific conferences and present their research. Since its beginning, the GCSC has raised money to pay for well over 50 travel awards. The GCSC has also helped in various charitable endeavors which raise money for research; as well as university-sponsored fund-raisers including golf-outings, wine and cheese art auctions, and smaller projects throughout the year. The GCSC also organizes several social outings from BBQs to whirly ball competitions, to intra-departmental sporting competitions.

Contacts:

Integrated Biomedical Science Program Administration				
IBS Program Director	Linda Baum, PhD	Linda_L_Baum@rush.edu	(312) 942-2881	Cohn 314
Associate Director	Ed Barker, PhD	Edward_Barker@rush.edu	(312) 942-3136	Cohn 620
Assistant Director	Amanda Marzo	Amanda_Marzo@rush.edu	(312) 942-7268	Cohn 514
Track Director (CAN)	Jeffrey Borgia, PhD	Jeffrey_A_Borgia@rush.edu	(312) 563-3553	Jelke 1414
Track Director (CVR)	Kathrin Banach, PhD	Kathrin_Banach@rush.edu	(312) 563-3553	Jelke 1419
Track Director (III)	Linda Baum, PhD	Linda_L_Baum@rush.edu	(312) 942-2881	Cohn 314
Track Director (MSK)	Tom Schmid, PhD	Tom_Schmid@rush.edu	(312) 942-3051	Cohn 524
Track Director (NEU)	Dan Nicholson, PhD	Daniel_Nicholson@rush.edu	(312) 942-5418	Jelke 1474
Graduate College Administration				
Graduate College Dean (acting)	James Mulshine, MD	James_L_Mulshine@rush.edu	(312) 942-3588	AAC 438
Assoc. Dean	Gabriella Cs-Szabo, PhD	Gabriella_Cs-Szabo@rush.edu	(312) 942-2255	AAC 438

Core Curriculum for 2017-2018 IBS PhD Students

Course number	Course Title	Semester hours
Fall 2017-18		
BTN 523	Tools for Research	1
BTN 525	Experimental Design and Models of Disease	2
GCC 501	Molecular Biology and Human Genetics	2
GCC 502	Cellular Biochemistry: Proteins, Transport and Signaling	2
GCC 503	Functional Cell Biology	1
GCC 711	Advanced Readings in Molecular Biology	1
GCC 712	Advanced Readings in Cell Biochemistry and Cell Biology	1
GCC 505	Techniques in Biomedical Sciences	2
GCC 530	Laboratory Rotations I	v
Spring 2017-18		
GCC 506	Research Ethics	1
GCC 507	Biomedical Statistics	2
GCC 504	Functional Tissue Biology	3
GCC 714	Advanced Readings in Tissue Biology	1
GCC 550	Practical Bioinformatics for the Biomedical Sciences	2
GCC 531	Topics in Biomedical Integration I	2
GCC 533	Laboratory Rotations II	v
Summer 2017-18		
GCC 532	Topics in Biomedical Integration II	3
GCC 534	Laboratory Rotations III	v
Fall 2018-19		
GCC 593	Introduction to Grantsmanship	1
GCC 598	Pre-Dissertation research	v
Spring 2017-18		
GCC 544	Advanced Statistics	2

GCC 711, 712 and 714 are reading courses associated with GCC 501, 502, 503 and 504 respectively. They are required Core courses for PhD students. GCC 511, 512 and 514 are additional reading courses associated with GCC 501, 502, 503 and 504 that can be taken by PhD students as electives.

Course descriptions can be found in the Course Catalogue.

The Integrated Biomedical Sciences graduate program may revise courses and the student may be required to take the replacement courses. Such a requirement does not apply to students who have already taken a course.

In Years 3-5 the emphasis is on research. The student works with their track director, dissertation advisor and their committee to determine the most appropriate mix of electives and research hours. A typical registration is listed below:

- Electives 9 credit hours total to be dispersed from the 2nd through 5th year
- Cognates (track specific requirements) 16 hr from 2nd through 5th year
- GCC 694-698 Advanced Topics 1 semester hour each Fall and Spring term in the 2nd through 5th years. The Advanced Topics courses should align with your track or research interests.
- For GCC 598 Pre-Dissertation Research and GCC 699 Dissertation Research, 2 semester hours is considered to be a full time course load and a full time commitment to research.

While registrations appear similar in years 3-5, the nature and character of the research changes and the student passes through a number of steps towards completing their PhD.

Email Communication:

Students will be given a Rush email account which will be used for communication from Rush University, the Graduate College and others involved in the program. **This is our official way of contacting students and it is important to monitor this account**. An email sent to this account may notify students of program, scheduling or registration changes and constitutes **official notification**. It is essential that students make sure their Rush account is working and check it regularly.

PhD Program Progression:

Year 1 Classes and Comprehensive Exam:

The goal of the first year course work is to provide a strong foundation in the biomedical sciences and the skills necessary to engage a research problem ranging from molecular, biochemical, cellular and organ system perspectives. To this end, all students will take a core curriculum that is comprised of didactic, discussion and reading courses. The reading courses will show the students how to access the existing base of knowledge in order to stay abreast of the latest scientific advances and will provide an understanding of how to critically evaluate the literature. The core of the Integrated Biomedical Sciences program is a broad based approach to understanding disease. In the Spring Semester, first year students will take the Topics in Biomedical Integration course (GCC531). In this course, a specific disease will be studied from the molecular perspective to organ system failure under faculty direction. The students will then have a group project where they use the approaches they have learned to study another disease. This project will strengthen student skills in preparation of their comprehensive exam. In the summer, GCC532 Topics in Biomedical Integration II is the comprehensive exam. As part of this class, students will write a literature review approaching their topic from each biomedical perspective. This comprehensive exam assures that students meet the first Student Learning Outcome listed on Page 1 of this document. “The graduate will be able to competently approach a research or clinical problem from a variety of perspectives, accounting for the published literature that illuminates the molecular, cellular and organ systems manifestations of the disease process.”

Comprehensive Exam GCC 532: Each Track Director will select the diseases that will be the subjects of the comprehensive exams for students interested in his/her track. These choices will be reviewed and approved by the Course Director of GCC 532. The respective Track Director and GCC Course Director will also both grade the exam and determine whether a student passes or fails their comprehensive exam. If a student fails, they will be allowed one chance to remediate this failure. Remediation must be completed by the end of the Fall Semester following the exam. A second failing grade would result in removal from the program. The student would be given the opportunity to switch to the IBS MS program and complete a MS degree. If they choose this option they will not receive a stipend or tuition waver following their removal from the PhD program. The failure can be appealed to the IBS Education Committee. The IBS Committee would make a recommendation to the Dean of the Graduate Program who would make the final decision.

Year 1 Research Experience:

During the first year, every student will have three laboratory rotations: GCC 530, Laboratory Rotation 1 (variable), GCC 533, Laboratory Rotation 2 (variable), and GCC 534, Laboratory Rotation 3 (variable). Each rotation must be in a different laboratory. A student registering for the 3 required Laboratory Rotations should consecutively use GCC 530, 533 or 534. These laboratory rotations will expose the students to a range of research environments. Students are expected have a small project with a hypothesis and aims, to learn techniques and attend all lab meetings. Based on these rotations and other discussions with potential advisors, the student will submit the names of three potential Research Advisors with a priority ranking to the IBS Education Committee. The IBS Education Committee in consultation with the potential advisors will decide which student will be matched with which advisor. Students committed to a particular laboratory (funded by the Research Advisor's grants) are also required to do 3 laboratory rotations. Exposure to other laboratories and research will give the student a greater breadth of knowledge. Students are expected to select a Research Advisor and a Research Track by the end of their first summer term. All advisors must meet the criterion established by the program (see below).

Selection of Research and Rotation Advisors

After Rotations are complete and a PhD student has identified his/her Track and Research Advisor, the number GCC 598 is used for Pre-Dissertation Research. This should be switched to GCC 699, Dissertation Research, once the student has passed their Qualifying Exam and is officially entered into candidacy for the PhD. MS students will use GCC 530 and 533 for their rotations and GCC 599 for their MS Thesis Research.

Length of Rotation:

Ph.D. students should complete 3 research rotations by the end of the summer of the first year. Each laboratory rotation should be for 1 - 6 semester hours of credit and students should spend at least 7 weeks in each rotation with no less than 45 hours spent in the laboratory for a 7-week rotation of 1 credit. It is to the student's benefit to spend as much time as allowed by the demands of his/her coursework in the laboratory; they should communicate with the rotation advisor about the amount of time required for the rotation. If a student would like to do more than 3 rotations during the first year, they may do additional rotations. The number of credits received should reflect the amount of time spent in the laboratory.

Laboratory Rotation Guidelines:

Each Advisor may only host 1 Ph.D. and 1 MS student at a time for rotations. If there is more than 1 student in an Advisor's laboratory he/she has to confirm with the IBS Education Committee (EC) that sufficient financial and personnel resources are available. After a student meets with a potential advisor and decides that they would like to do a rotation in a particular laboratory, both the student and the potential rotation advisor should inform the Program Director of their interest. The Program Director presents proposed Laboratory Rotation pairings to the IBS EC for approval.

Following the rotation, the Rotation Advisor will evaluate the student and the student will submit a written description of the experience to the Program Director, the Rotation Advisor and the Track Director. In most cases, students will have their own project and should learn both about the research in the rotation laboratory and the methods that are used to pursue that research. All of these should be briefly described in the final report, which should be no more than 3 pages in length. Guidelines for the rotation report are provided.

Laboratory Rotations, Pre-Dissertation and Dissertation Research are Pass/No Pass courses. The Rotation Advisor's evaluation and research write up will be kept in each student's file. Rotations must be with Rush University Faculty members who are either members of the Graduate College Faculty or applying to become members of the Graduate College Faculty.

Requirements for Advisors:

Rotation Advisors and Research Advisors should hold a rank of Assistant Professor or higher in the Graduate College; inexperienced investigators must have a co-mentor for their first PhD student. Individuals who are in the process of becoming members of the Rush Graduate College Faculty may be Rotation Advisors with the understanding that they will be members of the Rush Graduate College Faculty prior to becoming a student's Research Advisor.

Research Advisors must demonstrate a commitment to service-related activities for the Graduate College, which include activities such as: serving on Graduate College committees, serving as a mentor for a MS student, hosting student research rotations, and participation in teaching-related activities.

Research advisors must have first or corresponding author peer-reviewed manuscripts that demonstrate continuous productivity, current independent research grant support (competitive, national) and evidence of collaboration. Advisors must have adequate laboratory space and facilities to accommodate a student. Research advisors must agree to >$5,000 annually for supplies for each student. Research Advisors are expected to have a supply budget of at least $10,000 per year for 2 years to be eligible to be a Research Advisor. Unless there are special circumstances, no investigator should have more than one PhD student from 2 consecutive classes who are paid for by the graduate school. A faculty member who brings a student into the program does so with the understanding that he/she agrees to support the student throughout the entire program. Investigators who provide support for graduate students must do so at least at the level of the Rush Fellowships in the IBS program. If a faculty member brings a student into the program and cannot or does not wish to continue supporting that student, the faculty member will work with the dean to identify means to accommodate the student by identifying a new PhD advisor or until a MS degree can be conferred.

Selection of Research Advisors:
Course Numbers for Laboratory Rotations and Research: GCC 598 PhD Pre-Dissertation Research (variable),GCC 599 MS Thesis Research (variable) GCC 699 PhD Dissertation Research (variable).

After 3 laboratory rotations, PhD students may select advisors. If a laboratory rotation is to be completed and pre-dissertation research initiated in the same semester, a student can register for both GCC 534 and GCC 598 during the same semester.

A PhD student who is ready to select a Research Advisor should provide the Program Director or their potential Track Director with a ranked list of 3 potential Research Advisors. At that time their Program Director will obtain the following information from the student's first choice for a Research Advisor: (1) an NIH style Biosketch, (2) current and prior funding, (3) a list of previous students they have advised, including both PhD and MS students and (4) budgets containing at least $10,000 of supply funding /year for at least 2 years. IBS Education Committee will review the request. If the advisor choice is approved, the process is complete. If the first choice is not approved, the same information will be requested of the student's second choice and so on. If none of the choices are approved, the student will be asked to provide another choice. They may choose to do another rotation prior to making this choice. Once a Track and Research Advisor are identified, the Track Director and Research Advisor will guide the student's progress.

Guidelines for Rotation Reports:

Format: 3 pages maximum
Your report should start with the following information:

- Student
- Rotation Advisor
- Other mentors and their roles in the project
- Dates of rotation
- Number of hours spent in the rotation per week

Body of Report should have the following sections:

- Hypothesis
- Aims
- Introduction/Background
- Methods
- Results
- Discussion/Conclusions

Were you satisfied with the rotation experience?

Rubric for Evaluating Student Performance during Laboratory Rotations – Rotation Advisors should fill out 1-5 and add any comments they wish to add.

Evaluators should use the following scale to rate student performance for items 1-6
A = 4; B = 3; C = 2; F = 1

1. Professionalism:
   Student was present at appropriate times and spent an adequate amount of time on their research project _____

2. Preparedness/participation:
   Student showed enthusiasm for learning lab techniques/procedures and prepared by previewing relevant information _____

3. Literature:
   Student reviewed pertinent literature for their project and was able to summarize/discuss with mentor and/or lab personnel _____

4. Lab Notebooks:
   Student was diligent and followed GLP procedures with lab notebook _____

5. Interpersonal Interactions:
   Student interacted/cooperated with mentor and other lab personnel in a positive and constructive manner _____

6. Final Report: (evaluated by Track Director)
   Student submitted final report of rotation experience (no later than 2 weeks post-rotation) and included the required components _____

Final Rotation Grade (avg. must be 3.0 or greater to pass) _____

The final rotation grade is given by the Program Director taking the rotation advisor's evaluation, the research report and other related information into consideration.

Year 2 Track Selection, Research, Qualifying Exam

The selection of Research Advisor will significantly influence the student's selection of a research track. Subsequent classes will be dictated by the track cognates and electives and by relevant electives offered in other tracks. The selection of electives should complement research activity and the interests of the students and should help prepare him/her for the career path identified through the use of the Individual Development Plan (IDP) website (http://myidp.sciencecarreers.org) and additional resources provided by the Graduate College. The goals of the 2nd year are to learn the relevant laboratory techniques and to develop a research proposal in conjunction with their Research Advisor. The research project will advance knowledge in a specific discipline and yield "first author" scientific publications for the student. The student's research proposal should include Specific Aims and be written up as an F31 grant (See "Dissertation Proposal and Presentation" on the next page). The student must select a Dissertation Committee and present the proposal to the committee by the end of the 2nd year. The proposal presentation to the Committee is considered the Qualifying Exam. Acceptance of the proposal by the Dissertation Committee means the student is a candidate for the PhD.

The student's assessment at this time relates to the following Student Learning Outcomes:

- The graduate will be able to acquire research skills, collect and analyze data, and interpret results in order to address an original research question.

In addition, this step begins the continuing assessment of the following outcomes:

- A graduating student will be capable of independent critical thinking and writing as well as proposing, performing and effectively presenting his/her research.
- The graduate will be able to work collaboratively with other scientists, physicians and health care professionals to give and obtain feedback concerning the approach to research problems, data analysis and implications of research.

The work environment in basic and clinical science is evolving. Students need to be aware of the many different types of opportunities available in the workplace and need to prepare themselves for the opportunities and challenges that they will encounter when they graduate. In addition to the research and the coursework that the student will be involved in the student will create an Individual Development Plan (IDP) to define their areas of interest including teaching, administration, research in industry, or academic research. At the end of the first year the Program and Track Directors will review each student's IDP plan and progress in the program. Upon graduation, the graduate will have used the IDP, mentorship and training opportunities to refine their career path.

Student progress is assessed at the end of years 2-5. For Year 2 the assessment of student progress to meet expected outcomes will be evaluated by the student's Research Advisor and Track Director. See section on Dissertation Proposal and Presentation.

Year 3-5 Research Progress/Publications/Dissertation

For evaluations in years 3-5, the student will submit a written report documenting their progress. The research advisor and Track Director will also submit their assessment of student progress for each year. A meeting with the student, Research Advisor, and Track Director will take place at the end of each year to discuss the student's progress.

The Research Advisor monitors the day-to-day progress of the student. The Dissertation committee will meet at least once per year to monitor progress and to approve any changes to the proposed research project. They may meet more frequently, especially after the approval of the student's research proposal. The student is expected to attend national meetings, make presentations, posters etc. and become a part of the scientific community. Likewise, the student

should be submitting research articles. **The Integrated Biomedical Science PhD program requires that the research project yield at least one first authored research article accepted for publication in a peer-reviewed journal**. The publication requirement is necessary for graduation but not sufficient. The Dissertation Committee will continue to assess student progress on the aims and determines when the student has completed his/her dissertation. (See Dissertation Proposal and Presentation on the next page)

The student's assessment continues on the outcomes listed above with emphasis on the growth of research and communication skills. Likewise it is expected that the communication outcomes will also become more centered on written communication in the form of abstracts, peer reviewed journal articles and dissertation as the student begins to complete the following outcome.

- The graduate will be able to contribute to the scientific literature in an area of expertise via published abstracts, a dissertation and by the publication of a first authored research article in a refereed journal.

Academic Advisor/Research Advisor:

The Program Director functions as the academic advisor to the student during the first year. The Program Director, during this time, determines the course schedule with the student and monitors the student's progress. In the second year the Track Director works with the Research Advisor and assists the student in selecting the proper cognates and electives.

Dissertation Research Committee:

After passing the comprehensive exam, the student selects a Research Advisor and begins to collect preliminary data. By the end of spring of the 2nd year the student and advisor select a dissertation committee in consultation with the Track Director. This committee advises the student and evaluates the dissertation. The Graduate College requires that the committee includes 5 members and that one member be the student's Research Advisor. A majority of the Committee (at least three members) must be faculty at Rush University who are members of The Graduate College. The chair of this committee, who cannot be the student's Research Advisor, will be chosen at the first committee meeting and will preside at all subsequent meetings and arrange for a timely completion of the dissertation work. The dissertation committee strives for consensus in all its actions. A majority vote of the committee's membership, however, is sufficient for all activities except the final approval of the dissertation.

In addition to the five committee members, the Program Director, Associate Director or the student's Track Director will serve as an *ex officio* member of the committee. *Ex officio* members can participate in the meetings but cannot vote. The Program Director, Associate Director and the student's Track Director are eligible to be selected to the five-person committee as full members; if they are selected, they cannot serve as the required *ex officio* member. The purpose of having an *ex officio* member is to monitor the quality of the exam experience. The *ex officio* member will ensure that the Graduate College rules are followed; they will report back to the Education Committee.

FAQ

Does everyone on the committee have to be a member of the Graduate College?
No, you may have a clinician or an outside member from another institution not affiliated with the Graduate College.

Is it possible to have a Clinician or some one from a Drug Company on my committee?
Yes, we require that 3/5 committee members be Rush University Graduate College Faculty. In addition to an outside member, a clinician or a scientist from a pharmaceutical company can provide translational expertise and may be a good fit for your committee.

Does everyone have to have a PhD on the committee?

No, but all members should have a doctorate, be it a PhD, MD, PharmD etc. Any exceptions are subject to a vote of the IBS Education Committee. Such decisions would have to be based on; 1) the person's expertise and contribution to the field, and 2) the person possesses an appropriate degree in that field.

Dissertation Proposal and Presentation:

All students will present a dissertation proposal before the end of the Spring Semester of their 2nd year that they have developed with their Research Advisor and dissertation committee. The format for the written portion of this requirement is the standard *Individual National Research Service Award* (F31) mechanism [see: grants.nih.gov/training/nrsa.htm#fellowships for more information]. In addition, a comprehensive review of the literature relevant to the proposed studies is highly recommended as an adjunct document for this requirement. [All students are highly encouraged to submit these proposals to the National Institutes of Health for consideration of funding. The schedule for submission deadlines is April 8th, August 8th, and December 8th of every year]. Once the written document is completed, the thesis proposal will be presented in a seminar format to the Integrated Biomedical Sciences program with the written portion provided to the student's committee at least 1 week prior to the presentation date. A formal committee meeting with dissertation proposal defense will follow this presentation. During this meeting, the quality and merit of the project will be made and a determination as to whether the work satisfies the degree requirements (or what measures for remediation are required to satisfy this requirement) will be made. Upon successful completion of this requirement the status of doctoral candidate is conferred on to the student. It is recommended this requirement be satisfied as early in the 2nd year as reasonably attainable. In the event students do not satisfy this requirement before the termination of the Fall semester of the 3rd year the student, their Research Advisor and the Track Director will need to present to the IBS Education Committee why this requirement has not been satisfied and provide a plan for remediation. If deemed unacceptable, the student may be recommended for a terminal Masters degree and/or transferred to another laboratory.

Once the thesis proposal requirement has been satisfied, all students will present an annual update to their committee in an identical format as the original proposal meeting with exception to the anticipated year for graduation. The annual update will consist of an oral presentation research progress by the doctoral student to their committee. This oral presentation will be followed by a discussion of progress in the last year; their career development will also be reviewed. A detailed written account of each of these areas will be distributed to the committee prior to this meeting. It is recommended that the myIDP website (http://myIDP.sciencecareers.org) be used whenever possible to track and report all professional development activities.

In the candidate's final year, a Dissertation Data Defense will be presented to their dissertation committee demonstrating that satisfactory progress have been made on the project to justify development of a plan to complete all experiments and to initiate dissertation preparation. Upon completion of this phase, the student will present the dissertation to the University in written form (approved by the Director of the Library of Rush University Medical Center) and present the work in a public one-hour lecture attended by the dissertation committee and faculty of the University. The dissertation committee then meets in closed session to approve the dissertation. Typically the meeting immediately follows the public lecture. In line with the rules and procedures of The Graduate College, the committee strives for a consensus, but the dissertation can be approved over the objections of a single committee member. However, if two committee members disapprove the dissertation, then it is not approved. The awarding of the PhD degree requires the demonstration of a capability for independent research and a contribution to scientific knowledge. It is assumed that one or more research articles are included in the dissertation. Since a peer reviewed first authored research article is required for the degree, the dissertation is not considered complete until its publication. If publication is pending, the committee may sign off on the dissertation but the Program Director will not sign off on the graduation form until the paper is accepted or published as verified by appearing on Pub Med.

Completion of the Degree:

The Registrars office must be notified of impending completion of the degree by submission of an "intent to graduate" form at the beginning of the final semester. Information for graduation can be found in the University Catalog and it is highly recommended that these requirements be reviewed with the Track Director to ensure all will be satisfied prior to semester end. As the dissertation is reaching final form, the student should consult with the University Librarian to assure that the dissertation will be formatted correctly. Upon dissertation approval, the student completes a final checklist to assure the necessary approvals. During this time you will be required to have an exit interview and provide us with feedback concerning your experience here at Rush University.

Policies

Transferring Credits:

Graduate level transfer credit is subject to approval by the Education Committee based on an evaluation of quality and equivalence by the course director. For graduate level programs, no more than one-third of the total number of required credits with a letter grade may be granted to a student as transfer credit for work done at another graduate institution. Grades may only be transferred if a letter grade of B or better was received.

Transfer credits can only be applied to satisfy the degree requirements of one program. Once applied, they cannot be used a second time for a new degree program. Previously earned program credits at Rush University may only be used to satisfy the requirements of another program if they are at the graduate level and if they meet the current curricular standards.

The number of credits granted for a given course cannot exceed the number awarded for the course on the transcript of the school where the course was taken or the number earned for the corresponding course at Rush University. Credits earned on the quarter system will be converted into semester credits where applicable. A quarter credit is equal to two-thirds of a semester credit (e.g. three quarter-system credits equal two semester credits). Course information (including grades) from transferred courses is not recorded on the student's transcript; only the number of credits is recorded and added to the cumulative number of credits.

In situations where students have advance standing in professional schools including Medical and Dental school, exceptions will be considered on a case-by-case basis.

Dropping Courses:

In year 1, a course may be dropped only with permission from the Program Director. After a student has entered a track, a course may be dropped only with the permission of the Track Director, followed by the approval of the IBS Program Director.

Appeal of Grades:

A student having difficulty with a course who anticipates being absent from class or faces an emergency that will impact their attendance or performance, should contact their course directors. A student who experiences a problem in their laboratory rotations or research should attempt to resolve the issue through direct communication with the Research Advisor. A good faith attempt to plan/resolve any issues directly with the course director or Research Advisor should always be the first course of action. If this fails, the student should bring their concern to the Program Director if they are a first year student or to their Track Director if they have already identified a track. The Program Director or Track Director will work with the student and faculty member(s) to resolve the issue. If it is a serious issue, the Program Director, Track Director or faculty member may involve the Integrated Biomedical Science (IBS) Education Committee. The student may also appeal directly to the IBS Education Committee by requesting in writing that it meet to discuss the issue. The IBS Education Committee will meet within 10 days to render a judgment to

best address the interests of the student within the guidelines of the Integrated Biomedical Sciences PhD program.

Students must maintain a B average. If a student's cumulative GPA drops below a B average, they will be on academic probation. They should meet with the Educational Committee to determine an appropriate course of action to enable the student to regain a B average. They should also discuss the possibility of remediation with the course director of the course(s) they had difficulty with. The course director may issue an incomplete grade for a limited time in accordance with university policy while agreed upon remediation takes place. If a student's PGA is less than 3.0 for 2 semesters, the Education Committee, who will determine whether or not the student should be dismissed, must review the student's progress. Students who have entered a track must receive at least a B grade in any courses deemed required by their Track. Failure to remediate a grade of less than B in a required course will be grounds for dismissal.

Other Appeals:
The IBS Education Committee will also hear complaints concerning academic dishonesty, non-professional behavior and student misconduct. The committee may become involved through a direct request from a student or faculty member or by a referral from the Honor Code Committee. If the Honor Code Committee has not been involved, the council may refer the initial request to the Honor Code Committee. The committee will hear testimony from any involved faculty and/or students. They may recommend remediation or disciplinary measures. Recommendations for expulsion or suspension are made to the office Dean of the Graduate College. Appeals will be heard by the Graduate College Council (GCC) or a subcommittee of the GCC that will be organized solely for the purpose of hearing the appeal and making a recommendation to the Dean. The ultimate decision regarding student expulsion or suspension rests in the office of the Dean of the Graduate College.

University Appeal Process:
The University has an appeal policy that allows for an appeal beyond the Graduate College. The University Appeal Policy is limited to the following issues: 1) a final course grade, 2) failure on a preliminary or comprehensive examination, 3) failure of the thesis/dissertation that results in his/her academic probation or dismissal from the University or an unreasonable delay in his/her graduation from the University.
The University appeal policy is covered in the "Appeals Procedure" in the University Catalog (included in the appendix).

Dismissal of students:
Grounds for student dismissal include, but are not limited to, the following:

1. Academic deficiencies
2. Failure to pass the Comprehensive or Qualifying Examinations
3. Inability to find a Research Advisor
4. Insufficient research progress
5. Exceeding the 5-year limitation for the PhD degree without permission from the Graduate College
7. Unprofessional conduct or, if in the view of the IBS Education Committee, of if the student is unsuitable for a scientific career.
8. Failure to live up to conditions specified in the letter of acceptance into the Graduate College.

Course Descriptions

Integrated Biomedical Science Year 1 Courses

BTN 523 Tools for Research
Application of computer, digital imaging and other supporting technologies are presented and practiced.

BTN 525 Experimental Design & Models in Disease

This course will study the role of the experimental model in research. The various aspects of experimental models, computer (in silico) to animal models, will be discussed, building on principles of experimental design. This course requires the student to critically evaluate published work and develop their model for a given disease. Research problems posed by faculty will be understood, developed and solved by students in a cooperative interactive application of computer and library resources.

GCC 501 Molecular Biology: Genome to Proteome
DNA structure, replication, recombination, cloning, sequencing and related topics will be covered. This course will continue with organization of the human genome, the cell cycle, genetic mapping and relationships between genes and diseases. Transcriptional and translational regulations will be included. FA [2]

GCC 502 Cellular Biochemistry: Proteins, Transport and Signaling
Concepts of cellular biochemistry which underlie the structure, organization and communication of cells will be presented. Protein, carbohydrate and lipid structure and function in cellular organization will be covered. Special emphasis will be placed on the roles of enzymes, signaling systems, receptors and membrane transport systems in cell function. This section will also overview neurons, synapses and neurotransmitters.

GCC 503 Functional Cell Biology
The major concepts of cell structure and function will be covered. Topics include tissue origin and organization, extracellular matrix, cytoskeleton, cell-cell adhesion, organelles and compartments, endocytosis, exocytosis, metabolic requirements for signal transduction, cell motility, and regulation of cell proliferation.

GCC 504 Functional Tissue Biology
The biochemical and cellular basis for tissue structure and function will be covered. Topics include systems histology and anatomy, immunity, tissue injury and repair/regeneration, regulation of cell-cell adhesion, apoptosis, endocrinology, pharmacology, and toxicology. SP [2]

GCC 505 Techniques in Biomedical Science
This laboratory course will provide a didactic overview and a demonstration of certain laboratory techniques. Topics includes electrophoresis, genomics, PCR, tissue culture, cell-sorting techniques, ELISA, chromatography/LC mass spectrometry, imaging techniques, histocytochemistry and microscopy.

GCC 506 Biomedical Ethics
The major issues of honesty and fairness as practiced in the scholarly pursuit of new knowledge will be reviewed. Topics include equal opportunity and non-discrimination, abusive relationships, student-faculty relationships, responsibilities of students, faculty, chairpersons and administrators, honesty in writing, authorship, and ownership of data.

GCC 507 Biomedical Statistics
This is an introduction to study design and hypothesis testing. Topics include data definition, study design, probability theory, confidence intervals, hypothesis testing, and the techniques used in modern biostatistics.

GCC 530 Lab Rotations
Hands-on experience in a laboratory to provide the student with an understanding of laboratory interests and learn research protocols. Repeatable for exposure in different labs. SP [variable]

GCC 531 Topics in Biomedical Integration I
Seminar and hands-on course to demonstrate the skills needed to approach diseases from the molecular, cellular and organ system levels.

GCC 532 Topics in Biomedical Integration II
Comprehensive exam project. Student demonstrates proficiency in approaching disease from the molecular, cellular and organ system levels. Utilizing all coursework from first year of Integrated Biomedical Science PhD program.

GCC 711 Advanced Readings in Molecular Biology
Readings course that covers literature central to the topics of GCC 501 and the application to the disease process.

GCC 712/713 Advanced Readings in Cellular Biochemistry and Functional Cell Biology
Readings course that covers literature central to the topics of GCC 502 and 503 and the application to the disease process.

GCC 714 Advanced Readings in Functional Tissue Biology
Readings course that covers literature central to the topics of GCC 504 and the application to the disease process.

GCC 650 Practical Bioinformatics for the Biomedical Sciences
Attain an understanding of the breadth of bioinformatics, especially as it relates to next-generation sequencing data. Understand the differences between different technologies and analysis methods, and know how to define an optimal study design based on the technology available and the scientific goals of the project. Be able to perform a set of basic bioinformatics analyses.

Curriculum Development

The IBS Education Committee (EC) evaluates current courses to determine whether they are meeting the needs of the students in our program. Methods of evaluation include the following (1) we review written course evaluations that the students complete at the end of each course, (2) the Program Director talks with each student in the program about the courses that they have completed and (3) the student representative of the IBS EC talks with her fellow students about the classes and gives us feedback. Once we have identified a course that needs attention, the committee discusses ways to remediate the problem. These may include a discussion with the professor to modify the existing course, development of a new course or dissolution of a redundant course.

New courses may be created to replace a deficient course or to fill an unmet need. Core courses have been modified, replaced and removed as a result of student feedback and new courses have been created to expand available cognates and electives for the scientific tracks.

To modify an existing course: If an existing course needs to be modified the IBS EC discusses the nature of the modifications desired and an individual is selected to discuss these modifications with the Course Director. If the Course Director agrees to make the modifications and they are minor, then changes are reflected in the syllabus and no further action is required. If the changes are substantial then the revised syllabus is submitted to the Graduate College Council for approval. If they involve a change in the number of credits for the course or a change in the name of the course, they go first to the GCC and then to the University Curriculum Committee (UCC) for approval.

To develop a new course: If the IBS EC committee, as a result of student or faculty input, feels that there is need for a new course, the general content of that course is discussed at the IBS EC meeting. After a general request for names of individuals who could teach the course in question, one or more individuals are asked to identify and talk with the person or persons who might be capable of and interested in teaching the course. The credentials of the potential Course Director are brought back to the IBS EC for discussion and if the committee is interested in having this

individual create a course, the individual is asked to submit the draft of a syllabus for consideration. If the draft is approved by the IBS EC committee then the potential course director will be ask to finalize the draft and put it into the University Format. This version of the syllabus will be forwarded for approval by GCC and the UCC.

To remove a requirement for an existing course: If an existing course is found to be redundant or otherwise unnecessary, the IBS EC can decide that this course is no longer required for their students. If this is the case, a more suitable course may be substituted for the course that is being replaced. In any case, the number of core credits required should be consistent with those approved by the HLC.

Where to find more information:

The copy of this manual specifies required courses and the expectations of the program. Keep this manual for future reference. The Integrated Biomedical Science PhD program abides by the policies and procedures of Rush University and the Graduate College of Rush University. Policies not detailed here are found in both the Rush University and Graduate College sections of the University Catalog. The University Catalog can be accessed online at the Registrar's site. Highly relevant sections are reprinted in the Appendix of this document.

Disclaimer:

While we strive for consistency, there may be conflicting information between this document, the University Catalog and the website. Nothing in this manual can override Graduate College or University policies. If you notice discrepancies or have any questions concerning these issues please alert the Program Director. The policies/curriculum in the manual you receive at matriculation (this document) govern your studies. If future changes in policy or curriculum apply to you or your course of study, you will be notified of the changes by email or in writing.

Appendix: Excerpts from the Rush University Catalog:

The University Catalog specifies the rules that govern the Graduate College and its Programs. Each Program may have additional policies and procedures providing that they do not conflict with those specified in the Catalog.

As a service to students and faculty, the Academic Policies, Academic Standing and Appeal sections of the Catalog have been reprinted in this Appendix. Please Note: Since the University Catalog for the current year is not available until the start of classes, the excerpts given here are from last years catalog. Please check the registrars website for the current catalog.

You are governed by the policies in effect at the time you entered Rush Univ. A copy of the catalog for each academic year is kept on line in a PDF file. A change in the policies can be made provided you are notified in writing or by email.

The Graduate College: Academic Policies:

The Graduate College adopts college-wide policies and procedures and reviews division regulations. Students follow the college and division policies in effect at the time of initial matriculation in The Graduate College. However, The Graduate College reserves the right to make substantive changes in its programs after the student's matriculation. Students will be informed in writing by the division director of any changes made during their tenure in the program. Students re-entering the college after an absence will be guided by policies and procedures in effect at the time of re-entry.

Examination Policy:
The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Pass/No Pass Grades:
Each division identifies all courses required of its students. Required courses are usually taken for grade and not under the pass/no pass (P/N) option. Research hours are generally graded using the P/N option. However, a division may opt to provide a letter grade for research classes (under 600) for master's students. The grading policy for post-candidacy research hours (over 600) for doctoral students is P/N.

Good Academic Standing

To remain in good academic standing, students must maintain a cumulative grade point average of 3.0 and meet the requirements of his/her division. A student must be in good academic standing to be admitted to candidacy and to graduate. Students failing to maintain a GPA of 3.0 will be notified by the Dean in writing that their student status has been changed to “on probation.” Students who fail to remediate their deficiencies within one academic year or are placed on probationary status a third time, are subject to dismissal by The Graduate College.

Academic Difficulty
Each division has policies and procedures regarding students who fail to maintain good academic standing. While the responsibilities of informing students of their academic problems and of establishing conditions for regaining good academic standing reside within the divisions, The Graduate College Council monitors the progress and promotion of all students and gives final approval to award students' degrees.

Dismissal
Each division establishes grounds for dismissal beyond the minimal criteria established by The Graduate College. Should a division recommend the dismissal of a student, the director will forward such recommendation to The Graduate College Council for final action. Letters of

dismissal come from the Dean. Appeal of a dismissal action begins within the appropriate division.

Full-time Enrollment

Full-time enrollment is required of all Graduate College students with the exception of the Clinical Research students and students within the divisions of Nursing and Health Sciences. Full-time students must register for at least 12 semester hours for the Fall and Spring Semesters and for 9 credit hours for the Summer term of the first year; 10 semester hours thereafter per term are required for full-time enrollment. Students must obtain written permission from the division director for exceptions to this policy. Students receiving a master's degree from The Graduate College as a full-time student must be enrolled for a minimum of two semesters and the summer term; part-time students earning a master's degree must be enrolled a minimum of two semesters per academic year. The minimum requirement for graduation from the college is 53 hours. At the time of graduation, the student must be enrolled in the College. The maximum time allowed for enrollment for a full-time master's degree is four years starting the first semester of official enrollment and for the PhD degree is five years.

Residency:
Doctor of Philosophy (PhD) candidates are expected to meet all requirements for graduation within five enrolled academic years in the Graduate College (excluding leaves of absence (see below)). This period begins the quarter in which the student formally matriculates. A student exceeding that time limitation must submit to the Graduate Council, in writing, a request to extend their candidacy beyond that time period. This request must identify the reasons for the extension and provide a written plan with reasonable deadlines for completion. This document will be co-signed by the student's advisor and division director. The council will then vote whether to accept the extension or not (passed by simple majority). The student's advisor will then provide an update on the student's progress after six months. One year after the extension is granted, the student is expected to complete all requirements. A second request may be made by the student's advisor and division chair, but only will be accepted through a two-thirds majority of the voting members present at a formal hearing of the Graduate College Council. Within one year of that second request, the student must complete all requirements for the PhD degree or face dismissal. Alternatively, the student may be awarded a MS degree upon the recommendation of the student's graduate division.

Readmission:
Any student who has withdrawn from the University or any dismissed student may apply for readmission by submitting an application for this purpose to the Graduate College admission office. An interview may be required. A re-entering student must meet the conditions for re-enrollment stated in his/her dismissal or re-entry acceptance letter and all policies, requirements and course sequence in effect at the time of re-entry. The student will pay tuition and fees at the rates in effect at the time of re-enrollment. Application deadlines may vary by division.

Academic Progression: The graduate division in concert with the rules of the College and Rush University develop specific regulations governing the process that results in final awarding of the degree. While such regulations differ slightly from one division to another, The Graduate College Council reviews each division's program and regulations for approval. In all cases, graduate divisions are required to be explicit and clear about regulations that will affect the candidate. This must be stringently observed in divisional regulations concerning selection of principal advisors, advisory committees, and a plan of study. Similarly, divisions will be explicit and clear concerning academic policies and procedures surrounding qualifying, preliminary, and final examinations when they are required. The divisions are also responsible for providing the candidate with the support needed to plan and conduct the dissertation research. At the same time, a major responsibility of the student is to become familiar with the regulations and expectations of his/her chosen division. These regulations and expectations are included in this Catalog within the sections devoted to each divisional program and are also included within program publications.

The student is responsible for understanding the regulations, and monitoring changes that may occur during their tenure in the program.

Student Academic Appeals Policy:

Any student of The Graduate College may appeal a final course grade, failure on a preliminary or comprehensive examination, or failure of the thesis/dissertation that results in his/her academic probation or dismissal from the University. A student may also appeal an unreasonable delay in his/her graduation from the University. No other issues may be appealed through this process. The process for filing an appeal is maintained by each division. The student may request a copy of the Division Appeal Process from the Division Director. This process will be completed within one quarter. If a resolution cannot be achieved at the Division level, the following procedure must be followed. At any step in the process, the student may withdraw the appeal by written notification to the program director with a copy to the Dean. In the event of a dismissal decision, a student may continue to enroll until the appeal process is completed or the student withdraws the appeal.

Step 1: If the student wishes to appeal the decision beyond the Division, within two weeks of receiving a decision from the Division, the student will submit a written statement to the Dean requesting consideration of his/her case by an advisory panel. The student must provide the following in the written statement.

- Course number and grade being appealed or other cause for probation or dismissal, i.e., failure of preliminary/comprehensive examination or thesis/dissertation
- Action being requested
- Justification for the request
- An outline of the efforts and actions already taken to obtain consideration of the request.

The student will send copies of this communication to the Division Director and the Department Chairperson. In addition, if a course grade is being appealed, the student will send a copy to the course director. If the evaluation of a thesis or dissertation is being appealed, the student will send a copy to the chairperson of the thesis/dissertation committee. The Advisory Panel will be The Graduate College Council. Its Chairperson will be appointed by the Dean from among the members. The Division Director of the student's division and any other member who is evaluating the student's academic status will not vote.

Step 2: Within two weeks after notification to the Dean, the Chairperson of the Advisory Panel will arrange a meeting of the advisory panel. It will submit a written recommendation to the Dean.

Step 3: Within two weeks following receipt of the advisory panel's recommendation and upon discussion with the student and with others as appropriate, the Dean shall reach a final decision and notify each party of the decision. The decision reached by the Dean is final.

The issues discussed and the outcomes of all meetings in this appeal process are documented. This record-keeping is the responsibility of a faculty member who is to be designated at each meeting. Copies of the documentation should be distributed to the individuals present at a meeting, to the Division Director, the Dean and to the student's academic file.

Rush University Academic Policies

The Academic Resources and Policies section of this catalog contains additional Rush University academic policies.

Rush University Statement on Academic Honesty and Student Conduct

Rush University students and faculty belong to an academic community with high scholarly standards. As essential as academic honesty is to the relationship of trust fundamental to the educational process, academic dishonesty violates one of the most basic ethical principles of an

academic community, and will result in sanctions imposed under the University's disciplinary system.

Examples of conduct that would subject a student to disciplinary action include but are not limited to:

- All forms of academic dishonesty including but not limited to: cheating; plagiarism; collusion; gaining or seeking unfair advantage in relation to any work submitted; helping others to gain an unfair advantage; removing examination materials from a secure examination area; the unauthorized downloading or copying of examinations that are given on- line; fabricating assigned academic work, including clinical assessments, and presenting them as authentic; facilitating academic dishonesty; unauthorized examination behavior.
- Obstruction or disruption of teaching, research, administration, clinical practice and community outreach or other University/Medical Center activities
- Falsification of student records, transcripts or financial aid forms or applications
- Theft of or damage to University/Medical Center property or the property of a member of the University/Medical Center community
- Threatened or physical abuse of any person or action that threatens or endangers the safety of others
- Misrepresentation, falsification, alteration, or misuse of the University/Medical Center documents, records or identification, or research data
- Unauthorized use or entry of University/Medical Center facilities
- Conviction of a crime deemed serious enough to render the student unfit to pursue his or her profession
- Conduct that is inconsistent with the ethical code of the profession the student is preparing to enter
- Unlawful use or possession of controlled substances on the Medical Center campus
- Unauthorized possession or concealment of firearms or other weapons on medical center premises at any time
- Attempting to gain access to another's e-mail or computer account, username or password
- Knowingly setting off false fire, safety or security alarms
- An accusation of student and/or faculty academic dishonesty or misconduct made in bad faith

Diversity, Equal Opportunity, Affirmative Action

For over three decades, the Rush approach to equal opportunity and diversity has not wavered. It is that equal opportunity and diversity in employment, education, and the delivery of health care are essential and must be furthered. This is a continuation of a policy that emanated from the Hospital Charters of 1865 and 1883 and the documents governing the establishment of Rush University in 1972.

In certain instances, the implementation of these policies requires the use of affirmative action initiatives. At Rush these are focused on strong recruitment and programming efforts, not on the use of quotas - and these recruitment and programming efforts will be continued, consistent with federal, state, and municipal guidelines.

Rush University is committed to attracting students who will enable the student body to achieve the educational benefits of diversity, and to providing services to all students, faculty, and other employees on a nondiscriminatory, equitable basis.

Discrimination or harassment against any member of the Rush University Medical Center community because of age, ancestry, color, disability as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, gender, gender identity and/or

expression, marital or parental status, national origin, pregnancy, race, religion, sexual orientation, veteran's status, or any other category protected by federal or state law is prohibited and will not be tolerated, nor will any person for those reasons be excluded from the participation in or denied the benefits of any program or activity within Rush University.

Shanon Shumpert, Director, Employee Relations and Equal Employment Opportunity Officer, has been designated to over- see the implementation of this policy for Rush University. Ms. Shumpert can be contacted by telephone at (312) 942-5239 or via email at Shanon_Shumpert@rush.edu

Additional resources may be found in Human Resources along with the following university individuals/offices:

Susan Chubinskaya, PhD
Associate Provost, Academic Affairs Armour Academic Center 441A (312) 942-6306
Susanna_Chubinskaya@rush.edu

Paula J. Brown, MBA
Manager, Equal Opportunity Programs Rush University Medical Center
128 Professional Office Building (312) 942-7094 Paula_J_Brown@rush.edu

Harassment: Policies and Procedures

The Policies and Procedures on Sexual and Other Harassment for the University and nonacademic sectors of the institution are intended to increase the awareness of Rush's long-standing commitment to preventing harassment and to focus on the internal resolution of any complaints. Under these policies and procedures, the more familiar category of sexual harassment as well as harassment related to age, ancestry, color, disability as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act, gender, gender identity and/ or expression, marital or parental status, national origin, pregnancy, race, religion, sexual orientation, veteran's status, or any other category protected by federal or state law is prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint. They also incorporate protections for a person who considers himself or herself accused in bad faith. While all administrators and supervisors have responsibility under this document, certain people have been specifically designated to deal with concerns and complaints that might come forward.

Inquiries or complaints of harassment from students, residents, or faculty members will be handled through the Office for Equal Opportunity by contacting Paula J. Brown, Manager, Equal Opportunity Programs, at (312) 942-7094, by mail (128 Professional Office Building), or via email at Paula_J_Brown@ rush.edu.

Copies of the Policies and Procedures are available from the Office for Equal Opportunity and are on the Rush Intranet.

Disability Rights

Rush University provides reasonable accommodations to all students on a nondiscriminatory basis consistent with legal requirements as outlined in the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973 and applicable implementing regulations of these statutes. A reason- able accommodation is a modification or adjustment to an instructional

activity, facility, program or service that enables a qualified student with a disability to have an equal opportunity to participate in all Rush University student activities.

To be eligible for accommodations, a student must have a documented disability as defined by the ADA and Section 504 of the Rehabilitation Act of 1973. Both the ADA and Section 504 define disability as (a) a physical or mental impairment that substantially limits one or more major life activities of such individual; (b) a record of such impairment; or (c) being regarded as having such a condition. For information to request accommodation(s), please contact your college representative listed below. Please do not make requests for accommodation(s) to individual faculty members, lectures or course directors.

In keeping with its goal to promote diversity among its student population, Rush University is committed to attracting and educating students who will help to make the population of health care professionals representative of the national population, including students with disabilities. In addition, Rush University wishes to insure that access to its facilities, programs and services are available to students with disabilities. The University provides reasonable accommodations to all students on a nondiscriminatory basis consistent with legal requirements as outlined in the Americans with Disabilities Act of 1990.

The American Disabilities Amendment Act of 2008, and the Rehabilitation Act of 1973.

Additional information can be found at:
http://www.rushu.rush.edu/catalog/aboutrush/disabilityrights.html

For disability-related assistance, questions, or concerns, contact:

Paula J. Brown, Manager
Equal Opportunity Programs Office for Equal Opportunity
Rush University Medical Center 1725 W. Harrison Street, Suite 128 Chicago,IL 60612
Tel. 312-942-7094
Fax. 312-942-4283
Email. Paula_J_Brown@rush.edu

Student Honor Code:

RUSH UNIVERSITY

Rush University Honor Code

I pledge that my academic, research, and/or clinical work will be of the highest integrity. I shall neither give nor receive unauthorized aid; I shall not represent the work of others as my own; I shall not engage in scientific misconduct; and I shall treat all persons with the greatest respect and dignity, just as the ethical codes of Rush University Medical Center and my future profession demand.

I recognize that behaviors that impede learning or undermine academic, research, and clinical evaluation, including but not limited to falsification, fabrication, and plagiarism, are inconsistent with Rush University values and must be reported.

Implementation of the Honor Code

This Honor Code (hereafter referred to as the Code) sets the standards for expected professional behavior within the University and the Medical Center. Commitment to this Code is a shared responsibility of all faculty, staff, and students within the Rush University community to ensure the highest standards of behavior, whether in the classroom, the laboratory, or in the clinical setting, and to ensure that education obtained at Rush provides a sound foundation for each student's future success as an academic, scientific, or healthcare professional.

Code Enforcement

Any violations of this Code or suspicion of student or academic misconduct should be reported to the student's college for further review in accordance with the procedures specified by that college. Each college will be expected to set standards for addressing Honor Code violations and cases of misconduct in a fair and consistent manner that best fits their respective student population. Students refusing to sign must submit a letter to their dean's office explaining why, and adherence to the Code is required for matriculation, whether or not the document has been signed. The Code may also be enforced for off-campus actions when the student is representing themself as a member of the University.

Commitment

By signing below, I affirm my commitment to this Code and pledge to act with integrity and adhere to the Rush University values of Innovation, Collaboration, Accountability, Respect, and Excellence. I understand that this signed document becomes part of my permanent record, and I must uphold the letter and spirit of this Code throughout my Rush education.

_____ _____

Student Signature Date

_____ _____

Printed Name College

HONOR CODE COMMITTEE
THE GRADUATE COLLEGE
RUSH UNIVERSITY

The Honor Code Committee (hereafter referred to as the Committee) acts as a third party working to investigate potential infractions of the Graduate College Student Honor Code. The Committee is made up of three voting faculty members (an Assistant Professor, an Associate Professor and a Professor) and three voting graduate students reflecting the diversity of the College. These members are appointed annually by the Dean of the Graduate College. A Chairperson is elected annually at the beginning of the academic year from among the voting members of the Committee. The Associate Dean of the Graduate College is a non-voting member of the committee.

Disciplinary Procedure

Students or Faculty reporting a potential infraction of the Graduate Student Honor Code may do so by contacting any member of the Committee or bringing the matter to the attention of the Associate Dean of the Graduate College (the liaison to the Honor Code Committee). The individual reporting the infraction should complete the Misconduct Complaint form and submit it to the Associate Dean of the college in which the accused student is enrolled before any further action is taken. However, during the process following this report, the individual reporting the infraction retains the option to remain anonymous. The following actions will ensue:

1. A written statement defining what infraction was committed (where, when and by whom) shall be presented to the Chairperson of the Committee within five working days of the incident.
2. Upon receiving the written statement, the Chairperson will meet with the individual who made the statement no later than one week after receiving the written statement. The Chairperson will inform the accused of the information upon which the allegation is based and give him/her an opportunity to respond. The individual who made the original written statement and brought it to the attention of the Committee may at all times remain anonymous.
3. The Chairperson of the Committee determines whether the accusation needs to be further investigated by the whole Committee.

4. If the Chairperson of the Committee concludes that the complaint is warranted, a hearing between the accused party, the accuser and the entire Committee should be scheduled within fifteen days but no later than 30 days after reception of the written report.
5. The accused party may be accompanied by an advisor of her/his choice who is not a party to the violation. The advisor may be any person of the accused party's choosing. The role of the person accompanying the student is that of an advisor, not a presenter of the case. The student must inform the Committee 24 hours before the hearing of his/her intention to bring an advisor. The advisor may not speak on the accused party's behalf during the hearing.
6. The accused student may not cancel a hearing within 24 hours of the hearing. The hearing will continue in the accused student's absence unless proof of extenuating circumstances is provided.
7. At the scheduled hearing/meeting of the Committee, the accuser will present the details of the incident to the voting members. He/she may choose not to face the accused. In that case, the accuser and accused parties will be heard separately, so that anonymity is preserved.
8. Following the presentation of the accusation, the accused party will be given the chance to challenge/refute the accusation by introducing orally, or in a written form, evidence in support of his/her defense.
9. After presentations from the accuser and the accused party, the Committee will be given the chance to question both parties in regards to the accusation. Should the accuser wish to remain anonymous, the Committee will not be allowed to question the accuser at the hearing

and will make their decision based on the initial written report and the presentation made by the accused party.

10. The Honor Code Committee will meet in a private session following the hearing to render a decision. The votes of the members of the Committee on motions made and seconded by Committee members will remain anonymous. The result of the vote(s) will be submitted to the Associate Dean who will be responsible for informing the parties involved in the case, including the Division Director of the accused student.

Disciplinary Actions

1. The Honor Code Committee's first response should, when feasible, be educational/remedial.
2. Upon repeated offenses, the Honor Code Committee shall bring the incidences to the attention of the Dean of the Graduate College and the Graduate College Council. This may trigger the College Policy on Dismissal.
3. The Honor Code Committee may also make recommendations for changes to the Course Director, Division, or the Graduate College. Such recommendations may include changes to the course or examination structure, clarification of policy regarding student conduct, and suggestions to better implement such a policy.