INDIANA UNIVERSITY
SCHOOL OF MEDICINE
Graduate Division

Friday, April 12, 2013

To: Sherry Queener, Ph.D.
Associate Dean
Indiana University Graduate School

From: Patricia J Gallagher, PhD.
Associate Dean for Graduate Studies
Indiana University School of Medicine

Re: **Request for Curriculum Change:**

Medical and Molecular Genetics Graduate Program

This memorandum is to request approval for a change in curriculum for the Medical and Molecular Genetics (MMG) Graduate program. The change reflects a removal of the requirement for three, 1 credit modular (5 week) courses (Q626, Q627, Q628), which are to be replaced with a semester-long course of 3 credits (Q580). The 3 credit course (Q580) already exists and covers the topics that were part of the three, 1 credit courses. Thus, this is a simple exchange that will enhance the training of the students enrolled in the MMG Ph.D. curriculum.

After reading the attached documents, I strongly support this change in curriculum. If approved by you (Dr. Queener), please ensure these changes are made in the graduate catalog.

635 N Barnhill Drive, MS 207 Indianapolis, Indiana 46202 (317) 274-3441 *fax* (317) 278-5211

INDIANA UNIVERSITY
DEPARTMENT OF MEDICAL AND MOLECULAR GENETICS
School of Medicine

April 11, 2013

Dr. Patricia Gallagher, Ph.D.
Associate Dean for Graduate Studies
IU School of Medicine
MS Room 213
IUPUI

Re: **MMGE curriculum updates**

Dear Dr. Gallagher:

The Department of Medical and Molecular Genetics (MMGE) would like to propose a change to its current PhD degree curriculum. Put simply, the proposed change is to replace the short, 1-credit modular (5 weeks only) courses Q626 (Mol and Biochem Genetics), Q627 (Cytogenetics), and Q628 (Population Genetics) with the full semester long, genetics survey course Q580 (Basic Human Genetics, 3 credits). Q580 is already an established course, and we will also have our second year PhD students take the established course, Q640 (Special Topics in Medical and Molecular Genetics). Attached is the description and rationale for these changes.

The faculty voted unanimously for these updates as part of our MMMGE PhD program curriculum (I have attached an excerpt of the minutes from our faculty meeting for your review). I therefore am sending this information to you and the Graduate Office for approval to recognize these curriculum changes for our MMGE PhD program requirements. Please feel free to contact me if you need further information.

Sincerely,

Brittney-Shea Herbert

Brittney-Shea Herbert, Ph.D.,
Associate Professor and Graduate Program Director
Medical & Molecular Genetics Program
317-278-6147
brherber@iu.edu

Attachments: MMGE Curriculum update proposal and rationale (1pg)
MMGE Basic Human Genetics (Q580) syllabus example (5pg)
MMGE Faculty Meeting Minutes excerpt-Feb. 21, 2013 (1pg)

Proposed Curriculum Change for the PhD in Medical and Molecular Genetics

The Department of Medical and Molecular Genetics (MMGE) would like to propose a change to its current PhD degree curriculum. Put simply, the proposed change is to replace the short, 1-credit modular (5 weeks only) courses Q626 (Mol and Biochem Genetics), Q627 (Cytogenetics), and Q628 (Population Genetics) with the full semester long genetics survey course Q580 (Basic Human Genetics, 3 credits).

Rationale:
When the IBMG PhD program of IUSM was initiated in 2007, MMGE adapted their PhD curriculum to accommodate the courses taken by IBMG trainees in their first year. The original 3-credit courses of the MMGE PhD curriculum (Q610, Q612, Q620, and Q630, each covering clinical genetics, molecular and biochemical genetics, cytogenetics, and population genetics) were each condensed into smaller versions as 1-credit courses to be taught in modular units (5 weeks each), during the fall semester of the second year, and by different course directors (Q625, Q626, Q627, Q628). In addition, the 3-credit genetics survey course Q580 (which encompassed all four aspects of genetics described above) was removed as a requirement for the PhD in MMGE.

After several years of observations on how the MMGE PhD students were doing on their qualifying examinations as well as the efficiency of teaching, the course directors of the 1-credit PhD core courses Q626 (Mol and Biochem Genetics), Q627 (Cytogenetics), and Q628 (Population Genetics) agreed that it would be more efficient and cohesive if the PhD students instead took the genetics survey course Q580. In addition, having PhD students attend Q580 with the other graduate students (MS students, MS-genetic counseling students, even IUPUI students) and fellows within the MMGE department would allow for more unity amongst our trainees and peer mentoring. Therefore, the proposed changes are:

- Replace **Q626, Q627, and Q628** (3 cr total) with **Q580**: Basic Human Genetics (3 cr). Q580 is already an established course. Recent syllabus attached.
- Keep **Q625**: Clinical Genetics (1 cr) as a requirement which encompasses the mission of training students in medical *and* molecular genetics.
- Instead of registering for Q660 seminar in the fall semester of their second year, have PhD students take a **Q640** (Special topics) course (1 cr, 1 day per wk) to discuss advanced topics/literature not emphasized in Q580, problem-based learning, and skills helpful for the PhD (grant writing, exam preparation). Q660 will be required for the subsequent semesters until 90 credit hours reached.

Current Requirements for MMGE major	Proposed New Requirements for MMGE major
12 credits in Genetics-approved/related courses with the following courses being required for the major: (Taken the Fall semester of the 2nd year in graduate school)- ➢ Q625 Introduction to Clinical Genetics (1 cr., 1st 5 wks) ➢ Q626 Fundamentals of Biochemical and Mol Genetics (1 cr.) ➢ Q627 Fundamentals of Human Cytogenetics (1 cr., 2nd 5 weeks) ➢ Q628 Fundamentals of Population Genetics (1 cr., 3rd 5 weeks) ➢ Q660 Medical Genetics Seminar (1 cr.) Students have the option of substituting any of the modular courses for the full, 3-credit versions of that course.	12 credits in Genetics-approved courses with the following changes: Replace three of the 1 credit modules with one, semester-long full survey course on Human Genetics, and substitute Q640 for Q660. (Fall semester of the 2nd year in graduate school)- ➢ Q625 Introduction to Clinical Genetics (1 cr., 1st 5 wks) ➢ Q580 Basic Human Genetics (3cr.) ➢ Q640 Special Topics in MMGE (1 cr.) Optional additional credits: any of the 3-credit versions of Q610, Q612, Q620, Q630. Q660 will be required for the subsequent semesters until 90 credit hours reached.

Basic Human Genetics (Q580) Fall 2012
M,W MS B-16 2:00-3:30 p.m.

Course Director: Stephen Dlouhy, Ph.D. Office: IB 153
sdlouhy@iupui.edu Phone: 274-5747

Text:

(T&T7): Thompson & Thompson GENETICS IN MEDICINE: Nussbaum RL, McInnes RR, Willard, HF. 7th edition, W.B. Saunders, St. Louis 2007. (The text is not required but is highly suggested if you are a genetics graduate student or if your genetics background is weak.)

Course Goals:

1. Survey of the field of Human Genetics. For Medical Genetics graduate students an introduction to more intensive studies in the major specialty areas of the department (Cytogenetics, Molecular/Biochemical Genetics, and Mathematical [Population/ Quantitative] Genetics). Only a brief introduction to "Clinical Genetics" per se, although clinical/phenotype concepts will be discussed often during the course.
2. Bridge between a basic genetics course and genetics as applied to humans.
3. Provide the basic tools of Human Genetics such as pedigree analysis; family studies; risk estimation; basic population, biochemical, molecular and cytogenetic concepts and techniques; and the inheritance patterns and key features of some common genetic diseases.

Schedule:

Date		Title
AUG	20	Introduction to Human Genetics (T&T7 1:1-3; 18:500-502; 8:163-164; 20:523-529) (Case Studies: 14, 23, 30)
	22	Mendelian Genetics and Ratios, Multiple Alleles (T&T7 7:115-118; 9:186-188; 8:160; 12:358-359; 13:402)
	27	Biologic Basis of Mendelian Genetics (T&T7 2:5-7,13-15,16-23; 5:67-68; 9:182-183)
	29	Sex Linkage, Sex Determination (T&T7 6:98-101,109-112) (Case Study 36)
SEPT	3	Labor Day Holiday
	5	Monogenic Inheritance (T&T7 7:118-123,126-129,135-137, boxes pp.126&130,139-142, 143-

144; 12:397-390) (Case Studies 1, 26, 29)

	10	Variations Related to Sex (T&T7 6:101-105; 7:129-135; 12:367-372) (Case Studies 12, 17, 18, 35)
	12	Non-Classical Patterns of Single Gene Inheritance (T&T7 5:77-81,142,144-147; 12:381-387) (Case Studies 4, 15, 28, 33)
	17	Population Genetics I (T&T7 7:123-126; 9:192-197,199-202)
	19	Population Genetics II (T&T7 9:180-182,197-199,202-204)
	24	Probability and Goodness of Fit (T&T7 19:509-516; 10:223-224; 17: 487) Q and A for exam
	26	EXAM 1
OCT	1	The Biometricians and Quantitative Inheritance (T&T7 8:151-159,168-169, box p. 173)
	3	Cytogenetics I-General Principles, Numerical Abnormalities (T&T7 2:15-16; 5:59-68,75-77,81-82; 4:55-56; 6:89-95; 15:453-455)
	8	Cytogenetics II-Structural Abnormalities (T&T7 5:68-75; 6:95-98,105-109) (Case Studies 27, 42)
	10	Linkage (T&T7 10:207-217,225-226; 9:189-190)
	15	No Class (Fall Break)
	17	Human Linkage (T&T7 10:217-223, box p.226)
	22	Genetic Pathways, Biochemical Genetics (T&T7 12:348-353, box p.357; 13:396-398,402-403; 17:488-490) (Case Study 38)
	24	DNA Structure and Replication Transcription, RNA Structure and Translation (T&T7 2:7-8; 3:25-31)
	29	The Genetic Code and Mutations (T&T7 3:31-33; 9:175-179, box p.181; 12:364-367) (Case Study 10)
OCT	31	Physical Bases of Mutations, DNA Repair (T&T7 16:482-484) (Case Study 43)

Q and A for exam

NOV 5 EXAM 2

7 Gene Regulation, Recombinant DNA
(T&T7 2:8-10; 4:41-55,56-57; 11:327-329; 16:479-482)

12 Human Molecular and Biochemical Genetics I
(T&T7 3:33-36; 9:183-186; 19:516-519)
(Case Study 22)

14 Human Molecular and Biochemical Genetics II
(T&T7 2:10-13; 3:28-30; 9:179-180; 11:326-332,333-342)
(Case Studies 4, 28, 30)

19 Human Molecular and Biochemical Genetics III
(T&T7 8:164-166; 12:356,360-364,372-381; 13:398-399; 17:492-494)
(Case Studies 14, 16, 17, 32)

21 Thanksgiving Holiday

26 Cancer Genetics
(T&T 8:162-163; 16:461-479)
(Case Studies 5, 8, 13, 19, 34)

28 Immunogenetics
(T&T7 3:36-38; 9:188-189,190-192)

DEC 3 Clinical Genetics
(T&T7 8:166-168; 14:419-422; 19:507-509)
(Case Study 7)

5 Genetic Manipulations, Transgenic Mice and Human Gene Therapy
(T&T7 13:410-416)
Q and A for exam

10 (or 12) EXAM 3

Grading:

Each exam counts for 1/3 of your grade. Although much of the material in genetics builds upon previous content, tests for the most part will concentrate on the material covered in that section of the course. The first two tests will be a combination of multiple choice and short answer/problem-based questions (some necessitating synthesis of material and combining of concepts). The third test (final exam) most likely will be all multiple choice. Some problems will be given as homework and gone over typically during the next class period. These will not be graded, but it will help you considerably to do the homework problems. Tests will not be returned for you to keep, but they will be available so that you can look over and review them.

Grading Scale:

The grading scale is given below. It will be an unusual exam that is not curved. Any grade above straight B is considered to demonstrate above average comprehension as reflected in examination performance. For each exam you will receive a raw score and percentage score. Remember in graduate school a B grade is satisfactory performance. Note that grades of C and lower are not passing grades in graduate level courses.

Letter grade	Percentage
A+	97-100
A	93-96.99
A-	89-92.99
B+	83-88.99
B	70-82.99
B-	65-69.99
C	55-64.99
D	50-54.99
F	<50

Attaining the percentages above will assure the student of obtaining at least the respective letter grade. At the discretion of the course director, the overall course grade may be curved, i.e., given letter grade may be possible with a lower percentage than stated above.

Cheating and Plagiarism:

Students are instructed to make themselves aware of University regulations concerning plagiarism, the maintenance of academic honesty and the definitions of unacceptable behavior and cheating. Academic misconduct of any sort will not be tolerated and will be dealt with as outlined in the ***IU/IUPUI Code of Student Rights, Responsibilities, and Conduct***, which can be viewed at: http://www.iupui.edu/code/

Examples of misconduct include but are not limited to:

1. Cheating

A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise.

2. Fabrication

A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.

3. Plagiarism

A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge an indebtedness whenever he or she does any of the following:
a. Quotes another person's actual words, either oral or written
b. Paraphrases another person's words, either oral or written
c. Uses another person's idea, opinion, or theory; or
d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

4. Interference

a. A student must not steal, change, destroy, or impede another student's work.
b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Potential consequences for academic misconduct:

If the instructor has information that one of his/her students committed an act of academic misconduct, the faculty member will hold an informal conference with the student. The conference will be prompt and private. If the faculty member concludes that the student is responsible for the misconduct, then the faculty member will impose an appropriate academic sanction (i.e., lower or failing grade on the assignment, assessing a lower or failing grade for the course).

Disabilities:

Students needing accommodations because of a disability will need to register with Adaptive Educational Services (AES) and complete the appropriate forms issued by AES before accommodations will be given. The AES office is located in Taylor Hall, UC 100. You can also reach the office by calling 274-3241.

Visit http://aes.iupui.edu/ for more information.

DEPARTMENT OF MEDICAL AND MOLECULAR GENETICS
FACULTY MEETING MINUTES
(Excerpt)

Thursday, February 21, 2013 – 11:00 a.m.

Attending: JoLynn Bahr, Shaochun Bai, Robert Bies, Ken Cornetta, Paula Delk, Steve Dlouhy, Tatiana Foroud, David Gilley, Chris Griffith, Brenda Grimes, Brittney-Shea Herbert, Sarath Chandra Janga, Janaiah Kota, Yunlong Liu, Kyle Martin, Kim Quaid, Lilith Reeves, Elliot Rosen, Mary Stuy, Hiromi Tanaka, Wilfredo Torres-Martinez, Gail Vance, Matteo Vatta, David Weaver, Ken White, Scott Witting, Xin Zhang

Teaching (Brittney-Shea Herbert)

Dr. Dlouhy spoke regarding the curriculum change proposal which was discussed at last month's meeting regarding elimination of the 3 one credit hour modules (molecular, population, and cytogenetics) and rolling some of that material into Q580. He indicated that there is space in Q580 to modify and make it appropriate to the Ph.D. students as well as other students in the department. He indicated that the one hour module in clinical genetics would remain. Dr. Dlouhy indicated that the curriculum committee is proposing a one credit hour version of Q640 that would allow some sessions to teach advanced cytogenetics, molecular, and some population which doesn't get taught in Q580 (containing 2-3 lectures for each of those module extensions). He also stated that there could also be research related sessions which would allow faculty to present on their specific areas, as well as a session on latest and breaking news regarding new developments. He suggested that students would forgo the required one credit hour seminar when taking this course. The faculty unanimously agreed to this change in the curriculum. Dr. Herbert indicated that she would inform the IUPUI Graduate Council of these curriculum changes.

The meeting was adjourned at 11:30 a.m. in order to hold master's students reviews.