UNIVERSITY OF NEBRASKA MEDICAL CENTER unmc.edu

Register for Summer Courses

Applications for 2011 Summer Courses are due the Friday before the course begins.

HUMAN GROSS ANATOMY

June 13, 2011—July 22, 2011
Laboratory oriented course includes total body dissection organized into weekly modules.

MEDICAL EMBRYOLOGY

June 13, 2011—June 30, 2011
Lecture only.

MEDICAL HISTOLOGY

June 20, 2011—July 22, 2011
Structure and function of the cell including the molecular level coupled with tissue and organ histology.

MEDICAL NEUROSCIENCE/ NEUROANATOMY

July 18, 2011—Aug 12, 2011
Integrated program. Multimedia programs are used.

These courses have been offered for over 25 years and are equivalent to those offered to first year medical students.

www.unmc.edu/summer school

Department of
Genetics, Cell Biology and Anatomy
986395 Nebraska Medical Center
Omaha, Nebraska 68198-6395

Phone: (402) 559-4030
Fax: (402) 559-3400

University of Nebraska Medical Center

University of Nebraska College of Medicine
Summer Programs Application and Consent Form
Application deadline is the Friday before classes begin.

Section I: To be completed by student. *Note*: We prefer that applicants submit this form electronically at: ***www.unmc.edu/summerschool*** At registration, bring a hard copy signed by your institution's administrator.

Name of Applicant: _____ Current Tel: ( ) _____

Current Address: _____

Permanent Mailing Address: _____

Permanent Tele: ( ) _____ Date of Birth: _____

Alternate Tele: ( ) _____ Soc. Sec. # _____

Presently Enrolled at: _____

Reason for Taking the Course: _____

Signature: _____ Date: ____/____/____

A **separate $30 non-refundable registration deposit** is required to reserve a place in the course. Full payment for each course is due at registration. Please make all checks payable to: **Department of Genetics, Cell Biology and Anatomy**
and mail to: **University of Nebraska Medical Center**
986395 Nebraska Medical Center
Omaha, NE 68198-6395

		Course Requested:		**Course Dates:**
____	$500	Medical Embryology (513)	(2 cr hr)	6/13/11 - 6/30/11
____	$1,200	Human Gross Anatomy (516)*	(8 cr hr)	6/13/11 - 7/22/11
____	$995	Medical Histology (523)	(5 cr hr)	6/20/11 - 7/22/11
____	$850	Medical Neuroscience/Neuroanatomy (518)	(4 cr hr)	7/18/11 - 8/12/11

Students may elect to take any weekly combinations of subsections of the Gross Anatomy course, e.g., Dental Anatomy, Head, Neck & Spinal Cord or Thorax, Abdomen and Pelvis.* ***Prorated fees**: 1 Week (2 cr hr) - $450; 2 Weeks (3 cr hr) - $650; 3 Weeks (4 cr hr) - $825; 4 Weeks (6 cr hr) - $975; 5 Weeks (7 cr hr) - $1,100*

No. Weeks (if less than full gross anatomy course): ____ Prorated fee: $_____

Section II: Application is valid only after being signed by Administrator (please print or type).

This is to certify that _____ is a student in good standing and has been granted official approval to take the _____ summer make-up course offered by the Department of Genetics, Cell Biology and Anatomy at the University of Nebraska Medical Center, 986395 Nebraska Medical Center, Omaha, NE 68198-6395.

It is understood that a transcript of the grade awarded to this student will be sent upon completion of the course.

_____ _____
Administrator's Name *(please print)* Administrative Position

_____ _____/_____/_____
Administrator's Signature Date

**** Note: Illegible handwriting may cause a delay of your application process.***

REGISTRATION

Application:

The "Application and Consent Form" listing current dates for all courses is available on the web and at the front of this brochure. It includes a Consent Form for the home administration, which must be signed by the appropriate administrative representative if you are taking a course for credit. The signed form can be mailed or brought with you at the time of registration.

Please Note: A separate $30 *non-refundable* registration deposit is required to reserve a place in the course. Make checks payable to the Department of Genetics, Cell Biology and Anatomy and mail to the University of Nebraska Medical Center, 986395 Nebraska Medical Center, Omaha, NE 68198-6395.

Registration:

Registration for all of the courses will take place at 8:00 a.m. on the day the course starts. Please report to: Room 3010, Wittson Hall. (On entering Wittson Hall at the 42nd Street entrance, take the first right and then your first left. Full tuition payment is due at registration. Transcript authorizations, also included in the course package, will be completed by the student at this time. Photo I.D. cards, which authorize use of the Library, Fitness Center, Parking Lot access, and after-hour use of the Self-Study Media Resource Rooms, will be issued as a part of the registration package, along with a personal locker.

For additional information, please contact:

Dr. Robert T. Binhammer, Summer Program Coordinator
Department of Genetics, Cell Biology and Anatomy
University of Nebraska Medical Center
986395 Nebraska Medical Center
Omaha, Nebraska 68198-6395

Telephone: (402) 559-6238

Registration Coordinator, Tami Houdesheldt
E-mail: thoudesheldt@unmc.edu

Telephone: (402) 559-4030
Fax: (402) 559-3400

Grading Information

These courses are equivalent to those offered to the first year medical students at the University of Nebraska Medical Center. The credit hours for each course or subunit are listed on the first page. Students are responsible for obtaining, in advance, consent from the administration of their schools to enroll in the course if the course is being taken for credit. Final course scores will be derived from the compilation of individual examination scores, including multiple choice questions and practical examination questions. The Course Directors reserve the right to upgrade a student's scores, if appropriate. Under no circumstances will a student's scores be reduced. Grading shall be no stricter than the following scale:

A = 90% and above
B = 80% - 89%
C = 70% - 79%
D = 60% - 69%
F = Less than 60%

Appropriate administrators will be supplied with the above grading scales so that they can assess student achievement. Addresses for the mailing of transcripts, to both the appropriate administrator and to the student concerned, are processed at the time of registration. Grades will be sent to the appropriate authority and to the student's home address as soon as possible after the conclusion of the course.

UNMC CAMPUS INFORMATION

Bookstore: Students can purchase supplies and textbooks from the UNMC Bookstore in the Student Life Center at 3908 Jones Street.

McGoogan Library of Medicine: The library is located on the 6th, 7th and 8th levels of Wittson Hall. It is a very well-stocked regional medical library, and contains computer workstations and excellent facilities for study. Library privileges are extended to students enrolled in the summer course.

Summer hours:	Monday – Friday	7:30 a.m. - 9:00 p.m.
	Saturday	10:00 a.m. - 6:00 p.m.
	Sunday	1:00 p.m. - 9:00 p.m.

Fitness center: UNMC Center for Healthy Living, located inside the Student Life Center, is a new facility with racquet ball, basketball and a complete line of workout and aerobic equipment. Summer Student Membership will be available for $25 per month. For more information, check their website: http://www.unmc.edu/services/bus-fin/fitness/

Check writing/credit card privileges: Students who desire check-writing privileges should contact their bank and request a letter stating that it will honor checks (specifying the maximum amount) on presentation of said letter. The student will then be able to cash checks up to that amount at the Mid City Bank, 304 South 42nd Street. This bank is one block from the UNMC campus. Mid City Bank also allows cash on presentation of a national credit card. Telephone: 1-402-558-8000. Several ATMs are located on campus.

HOUSING INFORMATION

Housing: It is the sole responsibility of the student to secure his/her own housing.

Clarkson College Housing: Each furnished apartment includes: four private, furnished bedrooms; a furnished living room; two private bathrooms with double vanities; spacious, fully equipped kitchen; dining/study counter. Summer rent is $575 per person per month and includes all utilities, basic cable, local phone and internet. For more information about student housing at Clarkson College, contact the Student Housing Office at (402) 991-4825 or (800) 647-5500. You can also reach housing by e-mail at simpsonjennifer@clarksoncollege.edu

Phi Chi Fraternity House: This fraternity house is situated within easy walking distance of the Medical Center campus at 3708 Dewey Avenue. No meals are provided, but students have access to kitchen facilities. Call the house for more information: (402) 345-0270 or Duy Ha at (503) 347-7964.

Park Plaza Properties: Dormitory living with individual apartments and dormitory bathrooms, located just 10 blocks from the Nebraska Medical Center. Lease by the month. Call for more information: (402) 346-5550.

Kenefick Hall: These units are on the Creighton University campus (at 20th & Chicago Sts.) and are easily accessible by car. Double occupancy: efficiencies $141.50/wk per person, 1-bedroom $147/wk per person, private efficiencies $210/wk. A $100 refundable damage deposit is required. Call the Department of Residence Life at (402) 280-2717 or go to http://www.creighton.edu/ResidenceLife

Scott Village: Scott Village is located three miles from the UNMC campus on University of Nebraska at Omaha (south campus). Residents have access to a dining hall, study room, game room and laundry facilities. The cost if $465 per month. For availability and information, call Jonathan Orlich at (402) 778-6211.
e-mail: jorlich@scottcampus.com website: http://www.scottresidencehall.com

Nebraska Methodist College: Apartment-style living 3 miles from campus on a bus line. All units are fully furnished with private bedrooms. Please call Melissa Hoffman at (402) 354-7212 or email Melissa.Hoffman@methodistcollege.edu for more information. You can visit their website at http://www.methodistcollege.edu/studentservices/studenthousing/index.asp for more information and a photo tour.

GENERAL INFORMATION

Campus Parking: Parking privileges are extended to visiting students for $11/month in Lot 15 at the Student Life Center. Contact Parking Services at (402) 559-5304 for more information.

Transportation: *Public* transportation via Metro Area Transit is available. You can check the routes at the following link: http://www.metroareatransit.com/

Meals on Campus: In University Hospital there are the *Nebraska Café* and *The Corner Store* (convenience) – both are located on the 3rd floor. Breakfast (approx. $2.75 - $5.75), lunch ($3.75 - $7.00) and dinner ($4.00 - $7.50). A coffee cart and gift shop are on the 2nd floor. A central passageway connects Wittson Hall with the University Hospital facilities. Vending machines and microwaves can be found in the Sorrell Center.

Supermarkets:	No Frills Supermarket	820 N Saddle Creek Road (at Cuming Street)
	Baker's Supermarket	888 S Saddle Creek Road (at Leavenworth Street)
	Wohlner's Grocery	2289 S 67th Street

Restaurants & Fast Food Outlets:

Don & Millie's – 4430 Farnam Street
La Casa Pizzeria – 4432 Leavenworth Street
Taco Bell – 3855 Dodge Street
Mama's Pizza – 715 N Saddle Creek Road
Arby's – 4358 Dodge Street
Caffeine Dreams – 4524 Farnam Street (coffee house)
Smoke Shack BBQ – 3025 Farnam Street
Panera Bread – 344 N Saddle Creek Road
Greek Islands – 3821 Center Street
Katies Greek – 119 S 40th Street
Subway – 4020 Dodge Street
Wendy's – 4308 Dodge Street
Crescent Moon Ale House – 3578 Farnam Street
Bruegger's Bagels – 4015 Dodge Street
Attic Bar & Grill – 3231 Harney Street
Village Inn – 4416 Dodge Street

523 MEDICAL HISTOLOGY SCHEDULE

COURSE DIRECTORS: Shantaram S. Joshi, Ph.D. and Gordon L. Todd, Ph.D.

COURSE DESCRIPTION: The modern concepts of cell and tissue biology including molecular cell biology are incorporated into a framework of a traditional histology course. It is expected that the student will achieve an understanding of the histological structure as well as the ultrastructure upon which much of the current knowledge of normal and pathological function is based. The course will include 40 hours of lecture scheduled in the mornings. Laboratory sessions will be held Monday through Friday, from 1:00 p.m. to 4:00 p.m. Cells, fundamental tissues and organs will be studied with virtual microscopy, but gross slides and microscopes will also be available. Digital images of light microscopic and electron microscopic preparations will also be used. Students also have access to a videodisc library of histological photographs.

TEXT: Students may use a current edition of any appropriate Histology textbook. However, we recommend Human Histology by Alan Stevens and James Lowe, Second Edition, 1997. In addition, we recommend Color Atlas of Histology by Leslie P. Gartner and James L. Hiatt. Supplementary laboratory manuals and materials will be supplied.

EXAMINATIONS: Mid-term and Final Examinations over the didactic components of this course will be given as multiple choice questions in the format of the **USMLE**. The examinations over the laboratory practical components of the course will consist of identification of structures on virtual microscopy images and digital images of both light and electron microscopic images. Lecture and laboratory quizzes will also be held at various times over materials covered during the previous week. The major part of the course grade will be based on the student's performance on the Mid-term and Final Examinations. Scores on Lecture and Laboratory Quizzes will be considered. The Course Director reserves the right to upgrade student's scores, if appropriate, but under no circumstances will student's scores be reduced.

2011	DAY	LECTURE 9:00 a.m. - 11:00 a.m.	LABORATORY 11:00 a.m. - 1:00 p.m.
Week 1	Mon	Methods to study cell structure and function (SSJ)	Introduction to Virtual Microscopy
	Tues	Structure and functions of cells I (SSJ)	Cell Structure (SSJ)
	Wed	Structure and functions of cells II (SSJ)	Cell Structure (EM) (SSJ)
	Thur	Cell division, Cell Cycle Regulations (SSJ)	Cell Division (SSJ)
	Fri	Inter and Intracellular communications (SSJ)	No lab
Week 2	Mon	Extracellular matrix components /Adhesion molecules integrins/Connective Tissue (SSJ)	Connective Tissue (SSJ)
	Tues	Epithelium Integument (SSJ)	Epithelium and Integument (SSJ)
	Wed	Hematopoiesis and blood cells (SSJ)	Hematopoiesis/ blood cells (SSJ)
	Thur	Muscle (GLT)	Muscle (GLT)
	Fri	Lymphoid System (SSJ)	Lymphoid Tissues (SSJ)
Week 3	Mon	Cartilage and Bone (GLT)	Cartilage and bone (GLT)
	Tues	Male Reproductive System (JRS)**	Male Reproductive Syst. (JRS)**
	Wed	Respiratory System (GLT)**	Respiratory System (GLT)**
	Thur	**Review**	
	Fri	**MID-TERM EXAMINATION**	
Week 4	Mon	**No Class -July 4th Weekend Celebration**	
	Tues	Cardiovascular System (GLT)	Cardiovascular System (GLT)
	Wed	Urinary System (GLT)	Urinary System (GLT)
	Thur	Endocrine System (GLT)	Endocrine System (GLT)
	Fri	Female Reproductive System, Placenta (JRS)	Female Reproductive System(JRS)
Week 5	Mon	Gastrointestinal System I (SSJ)	Gastrointestinal System I (SSJ)
	Tues	Gastrointestinal System II (SSJ)	Gastrointestinal System II (SSJ)
	Wed	**REVIEW**	
	Thur	**REVIEW**	
	Fri	**FINAL EXAMINATION**	

QUIZ on materials covered during the previous week.** ****Will not be included on the Mid-Term exam.

518 MEDICAL NEUROSCIENCE/NEUROANATOMY

COURSE DIRECTORS: J. F. Rodriguez-Sierra, Ph.D. and R. T. Binhammer, Ph.D.

COURSE DESCRIPTION: The organization of the central nervous system and its physiology will be studied in this course. The medical aspects of the structural and functional organization of the CNS are demonstrated from clinical cases. Students registering for neuroanatomy will not be required to answer questions designated as neurophysiology.

EXAMINATIONS: Examinations over the didactic component of this course will be given as multiple choice questions in the format of the USMLE. An examination over the practical components of the course will consist of identification of structures on digital images and the gross brain.

SUGGESTED TEXT: You may use any text you have used previously. An atlas is usually very helpful.

2011	DAY	LECTURE 9:00 a.m. - 11:00 a.m.	LABORATORY 1:00 p.m. - 2:30 p.m.
Week 1	Mon	Organization & development of nervous system; Neural tube defects; Functional components of cranial ns.	Meninges + Topography of brain I (2-7)
	Tue	Histology and fine structure of nervous tissue; Blood brain barrier; Damage/repair of nervous tissue; Ventricular sys; Choroid plexus.	Arterial supply to brain and Topography of brain II (9-11)
	Wed	Morphology of adult nervous system including: Correlation of blood supply; morphology of CNS; Cranial n. nuclei, rev. cranial nerves	Spinal cord (13-16)
	Thur	Somesthetic pathways including: Trigeminal System	Brain stem nuclei & cranial nerve (23-25)
	Fri	Motor systems - upper motor neurons; Lesions	Somesthetic System (25-28)
Week 2	Mon	Auditory pathway; Vestibular system including: Nystagmus	Lesions
	Tues	Excitable membranes including: Sodium and potassium pump; Nernst Equation; Refractory periods.	Motor system (29-30)
	Wed	Neuronal communications and chemical transmission including: Synapse; Myasthenia gravis.	Vestibular system; Auditory system (31,37)
	Thur	Visual pathways; Visual field defects; Visual reflexes; Ocular motion.	Visual system (40) (47)
	Fri	**REVIEW**	**REVIEW**
Week 3	Mon	**EXAMINATION, WRITTEN AND PRACTICAL a.m.**	
	Tues	Functional and structural organization of cerebellum; Lesions.	Cerebellum (43-44)
	Wed	Basal ganglia and related nuclei including: Huntington's chorea; Parkinsonism; Hemiballismus.	Basal ganglia (45-46)
	Thur	Autonomic n.s.; Hypothalamus; Horner's syndrome; Diabetes Insipidus; Hypothalamo-hypophysial tract.	Hypothalamus (40) Lesions
	Fri	Thalamus and thalamocortical projections; Reticular sys.	Thalamus (38-39)
Week 4	Mon	Cerebral cortex including: Blood supply; Functional organization; Lesions, Aphasia.	Cerebral cortex (41)
	Tues	Taste and olfaction including: Anosmia and dysgeusia; Genetic disorders; Trauma	Gustatory and Olfactory Systems (37-38)
	Wed	Limbic system including: Papez circuit; Memory; Lesions	Limbic system (40-41)
	Thur	**REVIEW**	
	Fri	**EXAMINATION, WRITTEN AND PRACTICAL**	

516 HUMAN GROSS ANATOMY

COURSE DIRECTORS: Gordon L. Todd, Ph.D. and Jorge F. Rodriguez-Sierra, Ph.D.

COURSE DESCRIPTION: The organization of the human body and the way in which anatomical relationships serve as a basis for function are studied in this course. The medical aspects of the structural and functional organization of the human body are also a focus of attention. The course will consist of 30 lecture hours and supervised laboratory dissection from 1:00 p.m. to 5:00 p.m., Monday through Friday. The morning lectures are designed to provide guidance or explain difficult or conceptual material. The major learning experience occurs in the laboratory where teaching consists of small group discussions.

TEXT: Students are strongly urged to bring any appropriate gross anatomy text with them. The student should be familiar with this text to facilitate understanding of materials already studied.

DISSECTION GUIDE: A copy of the dissection guide used at the University of Nebraska Medical Center will be furnished to the student and is available on computers at every dissection table in an online form with links to images from the Netter Atlas.

LAB SUPPLIES: As part of the fee, we supply the dissection guide, dissection tools and rubber gloves. Students will provide their own clothing for laboratory (no required dress code).

EXAMINATIONS: Examinations over the didactic components of this course will be given as multiple choice questions in the format of the **USMLE.** The examinations over the practical components of the course consist of identification of structure, radiographic anatomy, osteology, and functional implications of material covered in the gross anatomy laboratories, and will be held following each didactic examination.

WEEK	DAY	LECTURE 11:00 a.m. - 12:00 Noon	LABORATORY 1:00 p.m. - 5:00 p.m.
1	Mon	Superficial back; Shoulder; Pectoral Region	Back and Scapular Region; Pectoral Region
	Tues	Axilla and Brachial Plexus	Axilla and Arm
	Wed	Arm and Forearm	Anterior Forearm
	Thur	Hand; Intrinsic Muscles; Vasculature	Hand and Posterior Forearm
	Fri	Nerve Lesions of Upper Extremity	Joints of Upper Limb (Demonstration)
2	Mon	**EXAMINATION 1 - Upper Extremity 9:00 am - 11:00 am**	Back, Vertebral Column, Spinal Cord
	Tues	Scalp and Face; Facial Nerve	Scalp and Face
	Wed	Cranial Cavity; Cranial Nerves; Circle of Willis	Removal of Brains; Cranial Cavity
	Thur	Orbit	Orbit
	Fri	Ear	Ear (Demonstration), Posterior Triangle
3	Mon	Triangles of Neck	Triangles of Neck
	Tues	Infratemporal Fossa; Maxillary Artery; Mastication	Deep Face
	Wed	Nasal Cavity and Paranasal Sinuses	External Pharynx and Nasal Cavity
	Thur	Oral Cavity and Root of Neck	Oral Cavity
	Fri	Pharynx and Larynx	Pharynx and Larynx (Demonstration)
4	Mon	**NO CLASS – INDEPENDENCE DAY**	Thoracic Wall and Pleural Cavities
	Tues	**EXAMINATION 2-Head and Neck** Lungs and Pleural Cavities	Thoracic Wall and Pleural Cavities ; Lungs and Heart
	Wed	Heart and Pericardium	Heart
	Thur	Mediastinum	Posterior Mediastinum
	Fri	Abdominal Wall; Inguinal Canal	Abdominal Wall; Inguinal Canal
5	Mon	**EXAMINATION 3 - Thorax and Abdominal Wall 9:00 am - 12:00 pm**	Peritoneal Membranes; Abd. Viscera
	Tues	Abdominal Viscera; Blood Supply	Abdominal Viscera
	Wed	Posterior Abdominal Wall; Kidneys; Lumbar Plexus	Post. Abd. Wall; Kidneys; Lumbar Plexus
	Thur	Pelvic Cavity; Int. Iliac Vessels	Pelvic Viscera; Vasculature
	Fri	Perineum	Pelvis and Perineum (Demonstration)
6	Mon	**EXAMINATION 4 - Abdomen, P&P 9:00 am – 12:00 pm**	Anterior and Medial Thigh
	Tues	Gluteal Region and Thigh	Gluteal Region and Posterior Thigh
	Wed	Knee	Knee and Leg
	Thur	Arches and Sole of Foot, Nerve Lesions of the Lower Extremity; REVIEW	Ankle; Sole of Foot; Joints of Lower Limb (Demonstration)
	Fri	**EXAMINATION 5 - Lower Extremity 9:00 am - 11:00 am**	Joints of Lower Limb (Demonstration)

513 HUMAN EMBRYOLOGY

COURSE DIRECTOR: Sarah Keim-Janssen, Ph.D.

COURSE DESCRIPTION: This course will provide a review of medical embryology in a lecture format that follows the material used in our medical student and allied health courses.

EXAMINATIONS: A midterm and final examination over the didactic component of this course will be given as multiple choice questions in the format of the USMLE.

SUGGESTED TEXTS: Students should bring the textbook used at their primary institution. Some examples of texts we recommend include: The Developing Human by Keith L. Moore and T.V.N. Persaud; Human Embryology by William J. Larsen; and Langman's Medical Embryology by T.W. Sadler. Students are expected to read sections which parallel the topics covered in the lectures.

WEEK	DAY	LECTURE (MSC 3003) 8:00 a.m. – 10:00 a.m.	TEXT CHAPTER
1	Mon	Orientation of Omaha and UNMC - Complete Admission Requirements and Access to Blackboard	
	Tues	1 - Fertilization 2 - Gastrulation	1 & 2 4 & 5
	Wed	3 - Fetal Membranes 4 - Placenta	7 & 3 7
	Thur	5 - Nervous System 6 - Muscular and Skeletal System	17 14, 15 & 16
	Fri	7 - Face 8 - Eye and Ear	9 18
2	Mon	NO CLASS	
	Tues	**EXAM 1**	
	Wed	9 - Mouth and Tongue 10 - Pharyngeal Arches	9 9
	Thur	11 - Pleura and Lungs 12 - Heart	8 & 10 8 & 13
	Fri	13 - Circulatory System 14 - Gastrointestinal System	13 8 & 11
3	Mon	NO CLASS	
	Tues	15 - Genitourinary System 16 - External Genitalia	12 12
	Wed	16 - Skin 17 - Fetal Growth	19 20
	Thur	**EXAM 2**	