



BIOMEDICAL COMMUNICATIONS

■ CHAIR, GRADUATE PROGRAM

Lewis E. Calver, M.S.

■ DIRECTOR, BIOMEDICAL ILLUSTRATION

Lewis E. Calver, M.S.

■ DEGREE OFFERED

Master of Arts

Biomedical Communications-Biomedical Illustration

FACULTY AND RESEARCH INTERESTS

Lewis E. Calver, Associate Professor

M.S., University of Michigan, 1973

Effective use of medical illustration in biomedical communications; visual explanations of biomedical information; envisioning scientific concepts and information.

Richard P. Howdy Jr., Clinical Instructor

M.A., UT Southwestern Medical Center, 2005

Three-D computer-generated animation for medical illustration students; 3-D modeling, lighting and animation techniques.

Kimberly A. Hoggatt Krumwiede, Associate Professor

M.A., UT Southwestern Medical Center, 1993

Biomedical multimedia development and production; research and development of applications for new and emerging technologies with multimedia for student, physician, and patient education.

■ ADJUNCT FACULTY

Susan B. Douglass, Adjunct Assistant Professor

B.F.A., University of Mississippi, 1981

Graphic design applications in the health sciences; use of computers as production tools; art direction and design; instruction for the health sciences.

Anthony G. Frisbie, Adjunct Assistant Professor

Ed.D., Texas Tech University, 1989

Development of instructional systems, interactive media and applied image-based technology for Web and stand-alone delivery; writing and presentation skills; creation of video and photographic media for presentation or instruction.

Gregory G. Gion, Adjunct Instructor

B.S., University of Illinois Medical Center, 1981
Three-D models and prosthetics.

OBJECTIVE

The objective of the Biomedical Communications Graduate Program is to help students develop the ability to solve problems related to the communication of biomedical information. The program offers students the opportunity to develop their skills as medical illustrators within the health-care system. Training is accomplished in an active medical center environment.

FACILITIES

The Department of Biomedical Communications academic program is operated as an academic department of UT Southwestern Allied Health Sciences School and a graduate program within UT Southwestern Graduate School of Biomedical Sciences.

Classrooms, equipment and student work space are located at the Exchange Park campus and provide an excellent work and study environment.

REQUIREMENTS FOR ADMISSION

Applicants to the program must have a baccalaureate degree from an accredited college or university with a cumulative grade-point average of at least 3.0. They also must submit a Graduate Record Examination general test score.

It is recommended that applicants have an undergraduate major in applied art and design, commercial art or fine art, with a minor in biology or premedical sciences. A major in biology or premedical sciences with a minor in fine or applied art may be accepted by the Admissions Committee, as may other majors, depending upon the special circumstances involved and the emphasis selected. Applicants to this program also must submit a portfolio of artwork.

Applications and slide or digital portfolios for admission to the program must be submitted by Sept. 1. Applications and portfolios for late

admission must be submitted by Feb. 1. Late applications will be considered only if the class is not already filled from regular admissions. A personal on-campus interview may be required in the final review process. Classes begin in late May.

■ ESSENTIAL FUNCTIONS

Each student in the Biomedical Communications Graduate Program must be able to:

- 1) Communicate effectively with faculty, medical professionals and peers;
- 2) Produce illustrations in traditional media and on computer;
- 3) Assimilate information transmitted via lecture and participate in gross anatomy laboratory sessions for periods of four hours;
- 4) Attend surgery for periods of eight hours;
- 5) Produce effective communication materials based on direct observation, research and consultation with medical professionals.

CURRICULUM

The curriculum is designed to offer the student an opportunity to develop special knowledge and skills in the application of communications arts and technology to education in the health sciences. Students interact and collaborate with members of the basic and clinical science departments of UT Southwestern Medical School, UT Southwestern Graduate School of Biomedical Sciences, and UT Southwestern Allied Health Sciences School.

In the two-year program, the study of human anatomy, cell biology, neurobiology and pathology is combined with intensive experience in anatomical, surgical, editorial and advertising illustration. Students are offered the opportunity to develop additional skills in computer graphics, graphic design, television production, exhibit design, 3-D media production, instructional design, production of multimedia packages, animation and photography.

A minimum of 61 credit hours is required. A possible sequence of courses is:

■ FIRST YEAR:

SUMMER

5077 Computer Use for Health Professionals

5241 Illustration Techniques

5601 Human Anatomy*

FALL

5178 Developmental Anatomy and Embryology*

5340 Anatomical Illustration

5364 Introduction to Pathology

5369 Graphic Design and Production Techniques

5371 Writing for Biomedical Media

SPRING

5260 Medical Neuroscience*

5342 Introduction to Medical Illustration

5344 Biology of Cells and Tissues*

5367 Computer Animation

5370 Multimedia Production in Biomedical Communications

■ SECOND YEAR:

SUMMER

5095 Internship

5098 Thesis Research

5387 Advanced Computer Animation

FALL

5098 Thesis Research

5356 Management of Biomedical Communications Resources

5365 Medical-Surgical Illustration

SPRING

5098 Thesis Research

5385 Advanced Medical-Surgical Illustration

*Descriptions of these courses may be found in the *UT Southwestern Medical School Catalog* in the first-year curriculum.

REQUIREMENTS FOR GRADUATION

A candidate for the degree of master of arts must meet all general requirements of UT Southwestern Graduate School of Biomedical Sciences as described in the Requirements for Graduate Degrees section.

In addition, he or she must 1) demonstrate professional competence in his or her area of study; 2) fulfill all departmental and divisional course work of his or her individual program; 3) achieve a cumulative grade of B or above; and

4) complete a written thesis. The M.A. awarded will show the student's emphasis area as Biomedical Illustration.

■ THESIS REQUIREMENTS

The candidate, with the help of faculty advisors, will select a project that involves the investigation of a communications question or instructional problem in the health sciences. A written thesis with description of objectives, methods, and conclusions along with any media, if used, will be presented to the dean of the graduate school after approval by the faculty advisors.

COURSE DESCRIPTIONS

The Biomedical Communications Graduate Program consists of required courses and electives.

■ REQUIRED COURSES

5077 COMPUTER USE FOR HEALTH PROFESSIONALS

This is a hands-on introduction to the uses of computer software as applied to biomedical communications in the health professions. Students study photomanipulation, illustration, and graphic and presentation software. A final project includes the use and integration of the software into a health-related formal presentation.

5095 INTERNSHIP

The Internship in Biomedical Communications is designed to offer a pre-employment work opportunity that allows students to gain experience in a life-science setting. Students work under supervision and receive feedback on their performance.

5098 THESIS RESEARCH

Students enroll in this course while conducting thesis research leading to a master's degree.

5241 ILLUSTRATION TECHNIQUES

This course is an introduction to techniques of the medical illustrator. Emphasis is on pencil sketching and pre-rendering.

5260 MEDICAL NEUROSCIENCE

Basic human neuroanatomy is covered with an

emphasis on neurological clinical problems relevant to the rehabilitation of people with neurological dysfunction. The specific aim of the course is to develop a three-dimensional view of the brain. The format includes a series of lectures and laboratory presentations. Small-group sessions emphasize an understanding of clinical signs and symptoms associated with specific neurological problems through review of case studies.

5340 ANATOMICAL ILLUSTRATION

Students create drawings from dissections of a cadaver. Various techniques, both traditional and contemporary, are covered.

5342 INTRODUCTION TO MEDICAL ILLUSTRATION

Students are introduced to the application of basic illustration techniques in solving specific scientific and medical illustration problems. Traditional and digital production techniques are stressed. Basic principles of surgery are introduced.

5356 MANAGEMENT OF BIOMEDICAL COMMUNICATIONS RESOURCES

This course introduces management concepts. Both personnel- and project-management skills are covered. Topics include budgeting, hiring and supervising personnel, record keeping, report writing, and team building.

5364 INTRODUCTION TO PATHOLOGY

This course is a study of human disease and disease processes, both gross and microscopic. Etiology, pathogenesis and clinical-pathological correlation of systemic diseases are emphasized. Students also make sketches from fresh and preserved specimens.

5365 MEDICAL-SURGICAL ILLUSTRATION

Illustrations from various subspecialties of surgery are the focus of this course, with an emphasis on accuracy and content. Students observe operating-room procedures and surgical techniques.

5367 COMPUTER ANIMATION

This course is an introduction to computer animation. PC-based programs are used to develop a

3-D rendering for a short animated sequence of scientific subject matter.

5369 GRAPHIC DESIGN AND PRODUCTION TECHNIQUES

This course introduces students to communication design theory, client management skills, art direction, constructive criticism, legibility standards, basic design principles and elements, design drawing (rough/layout/comprehensive), typographic design, specification/production methods, poster design, design of trademarks and logotype, printing methods and terminology, paper specifying, estimation of production costs, and production management.

5370 MULTIMEDIA PRODUCTION IN BIOMEDICAL COMMUNICATIONS

This course offers instruction in multimedia and Web-based production as it applies to biomedical communications (i.e., patient education, surgeon education, student education, etc.). In addition to a basic overview of concepts, students may develop skills in multimedia and Web-based production: project planning, scripting, instructional design, storyboarding; multimedia production: production of components in the multiple mediums used in a multimedia or Web-based project (photographs, graphics, animation, sound, video, etc.); multimedia program production: concepts and techniques for programming and producing a final multimedia or Web-based program; and multimedia production management: project management, communication with a medically related client, and program implementation.

5371 WRITING FOR BIOMEDICAL MEDIA

This course focuses on developing effective technical writing skills and instructional design. Students are offered opportunities to learn and apply structured writing techniques. In addition, students have the opportunity to learn how to write job aids, scripts for mediated instruction and technical reports.

5385 ADVANCED MEDICAL-SURGICAL ILLUSTRATION

Students sketch surgical procedures in the operating rooms and clinics. After in-depth research and consultation with surgeons, students prepare publication-ready artwork of various surgical subspecialties in a variety of media, both traditional and digital.

5387 ADVANCED COMPUTER ANIMATION

This course builds on the basic skills learned in 5367 Computer Animation. Using PC-based programs, students develop sophisticated computer animations to visualize complex medical and scientific subjects.

5601 HUMAN ANATOMY

This course offers a comprehensive study of the structure and function of human body systems and their mechanisms using lectures and cadaver dissection. Emphasis is placed on the major characteristics of each body system and its relationship to other systems. Lectures emphasize basic correlative clinical concepts.

■ **ELECTIVES**

5096 SPECIAL TOPICS

Contemporary topics in biomedical communications are presented by special arrangement. Students also may elect to conduct an independent in-depth investigation of an area of professional interest.

5263 LIFE DRAWING

Students draw from the human body in selected media. Special attention is given to surface anatomy.

5366 THREE-DIMENSIONAL MATERIALS AND DESIGN

This course uses contemporary materials and techniques for modeling, casting, and embedding scientific subject matter. Prosthetic devices also are covered.