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# ART (AR)

(Department of Communication and Fine Arts)

*Associate Professor* Will Valk, M.F.A.  
*Assistant Professor* Michael K. McDonald, Ph.D. (Chair)  
*Lecturer* Sherry Best, M.F.A., M.A.

The philosophy of the art program rests on the belief that art is not an ornament to education but an essential way of grounding knowledge in experience. The arts present the human rather than the theoretical implications of knowledge. In a complex and rapidly changing society the study of art introduces the student to a universal human activity and to a visual language which infuses forms with meaning and affirms our common membership in one human family. In art history and in studio Rockhurst offers courses which can provide a firm foundation for productive future study.

## Minor Field of Concentration

The lower-division prerequisites for the minor in art are AR 1200; one of the following: AR 1110, AR 1120, or AR 1130; and two of the following: AR 1250, AR 1300, AR 1350 or AR 1400. The upper-division course requirements are AR 3200 and two of the following: AR 3250, AR 3300, AR 3350, or AR 3400. An independent study in painting, sculpture, ceramics, or photography completes the requirements. A grade of C or better is required in each upper-division course in the minor. (A grade of C- will not fulfill the requirement.)

### AR 1110, AR 1120. Introduction to Art History I, II

(3)

*Fall and Spring semesters*

These courses provide a survey of the role of art in the western tradition and of the changing meanings which art has had at different periods and for different cultures within this tradition. The courses concentrate on several periods which have been of pivotal importance in shaping this tradition and examine the relationship which art has to the cultures which produced it and to ourselves today. AR 1110 follows the course of art from prehistory through the early Renaissance; AR 1120 concentrates on the period from the High Renaissance to the present. Each course has been designed as a complete unit and either or both courses may be taken in any order. (ARI)

### AR 1130. Introduction to Non-Western Art

(3)

This course explores the arts of Africa, Oceania, and Native America. The formal and expressive language of the arts can transcend cultural barriers and create a dialogue not only with individuals within one's own culture, but also with individuals and cultures separated from us by time and space. This language is a way of enlarging our understanding of the human condition. AR 1130 aims to expand the student's worldview by introducing and exploring the visual and performance arts from the earliest archaeological finds to contemporary creations from Sub-Saharan Africa, Oceania (Polynesia and Melanesia) and the Native Americans. In doing so, the course aims to increase the student's awareness of local art museums and art resources, improve visual acuity and research skills, and enhance descriptive and writing skills. (ARI)

### AR 1150. Art in the Galleries

(3)

Field trips to the various fine arts galleries in the city for an in-depth study of the many modes of expression in art. (ARI)

### AR 1151. Seeing Art: Context and Experience

(1)

Field trips to and the discussion and analysis of art exhibited in galleries and museums. (ARI—To satisfy the core this course must be taken in combination with other AR, MS, or TA courses to equal 3 hours.)

**AR 1200. Two Dimensional Studio:**

**Drawing and Design (3)**

This introductory course explores the techniques and principles of expressive composition in two dimensions. Through a series of projects in both design and representational drawing, the student becomes familiar with both a variety of media and the expressive possibilities of image making. Studio fee for materials. (ARI)

**AR 1250. Three Dimensional Studio:**

**Sculpture (3)**

This course explores a fundamental and definitive human activity: the making of expressive objects. Through a series of projects using different materials and techniques the student develops an understanding of expressive design and the skills necessary to make his or her ideas a reality. Studio fee for materials. (ARI)

**AR 1300. Painting I (3)**

An introductory course in the expressive possibilities of painting in oils or acrylics and the techniques necessary for their achievement. The course emphasizes observation and originality of vision. Studio fee for materials. (ARI)

**AR 1350. Ceramics I (3)**

An introductory course in ceramics and pottery designed to give the student an understanding of terminology, historical development of the craft, basic construction techniques and an experience in three-dimensional art. Studio fee for materials. (ARI)

**AR 1400. Basic Photography (3)**

A lecture-discussion-demonstration course designed to acquaint students with the basis of photographic principles and techniques as they apply to media production. The technical thrust is the application of such practical techniques as: camera operation, exposing Black-and-White film, processing Black-and-White film and printing Black-and-White prints. The fundamental emphasis of this study is a basic understanding of the concepts and uses of the qualities of captured light in time. A 35mm, fully adjustable, single lens reflex (SLR) camera is required. Studio fee for materials. (ARI)

**AR 1410. Color Photography (2)**

Introductory course in the use of color in fine art photography. Emphasis is on 35mm transparencies. A 35mm, fully adjustable, single lens reflex (SLR) camera is required. Studio fee for materials.

**AR 3050 (NS 3050). Scientific Illustration (3)**

A study of the basic techniques necessary to produce preliminary and final illustrations suitable for

publication of biological and technical subjects.

Emphasis is placed on sketching, pen and ink drawings, continuous tone drawing, animal drawing, watercolor, printing techniques, layout and design, lettering and maps and graphs. Field trips to a zoo, a natural history museum and printing plant are planned. Students complete a number of major drawing assignments designed to give them the expertise needed to illustrate their own research as well as that of other workers. This course does not satisfy the natural science requirement. Lab fee for materials. Prerequisite: instructor approval.

**AR 3200. Drawing and Design II (3)**

Continuation of AR 1200. A further development of visual perception and manual skills. Prerequisite: AR 1200 or equivalent. Studio fee for materials. (ARI)

**AR 3205. Graphic Arts (3)**

Graphic Arts is an upper-level course designed to accommodate advanced students interested in pursuing the creation of two-dimensional images/art works. Students taking this course will be expected to develop a project or series of projects to be undertaken over the duration of one semester. The student and instructor will discuss the conceptual and technical aspects of the work, determining the expectations surrounding the final output. The number of projects completed will be dependent upon what media are used and the amount of time required to execute an image or project. All students will keep a daily sketchbook/journal. All students will submit a one-page artist's statement at the close of the semester. May be repeated for credit. Studio fee for materials. Prerequisite: Drawing I (AR 1200), Painting I (AR 1300), or Photography I (AR 1400). (ARI)

**AR 3250. Sculpture II (3)**

Any art studio course is basically a matter of individual instruction. In Sculpture II the student can work on a project or series of projects in direct collaboration with the instructor. Studio fee for materials. Prerequisite: AR 1250 or equivalent. (ARI)

**AR 3300. Painting II (3)**

A further exploration of the possibilities of painting in oils or acrylics. Prerequisite: AR 1300 or equivalent. Studio fee for materials. (ARI)

**AR 3350. Ceramics II (3)**

Further work in ceramics and pottery with the opportunity to develop skill in wheelwork. Prerequisite: AR 1350 or equivalent. Studio fee for materials. (ARI)

**AR 3400. Photography II (3)**

This course investigates a variety of Black-and-White photographic techniques beyond those introduced in AR 1400. The student develops a portfolio which encompasses a wide span of endeavor. High contrast (litho), solarization, oil

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coloring toning and infrared techniques are used. A 35mm, fully adjustable, single lens reflex (SLR) camera is required. Studio fee for materials. Prerequisite: AR 1400 or equivalent. (ARI)

**AR 3450 (JN 3450). Photojournalism (3)**

This course explores the ability of photography to record news events, stories of human interest, and contemporary social issues. Photographic techniques with 35mm Black-and-White film and printing is introduced and reviewed. The analysis and criticism of images, the editing of photos and text, and the creation of narrative through the combination of word and image are primary areas explored. In addition, ethical and legal issues in photojournalism are introduced and examined. A 35mm, fully adjustable, single lens reflex (SLR) camera is required. Studio fee for materials. Prerequisite: AR 1400 or JN 2000 or instructor approval.

**AR 4400. Photography III (3)**

The student furthers professional and aesthetic goals by building a photographic portfolio geared to student's emphasis in photography. The course stresses professional preparation and training. Studio fee for materials. Prerequisite: AR 3400. (ARI)

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# DEPARTMENT OF BIOLOGY (BL)

<i>Professor</i>	Marshall L. Andersen, Ph.D. (Chair) George M. O'Connor Jr., Ph.D.
<i>Associate Professor</i>	Mary F. Haskins, Ph.D. Janet Cooper, Ph.D.
<i>Assistant Professor</i>	Lisa Felzien, Ph.D. Chad Scholes, Ph.D.

The biology department has two aims: first, to provide students preparing for careers in the biological disciplines with a firm and broad foundation in biology; second, to provide students interested in other areas of knowledge with an insight into the problems of life and living organisms.

The department also seeks to instill in the student a deep respect for research and a sound and thorough scholarship in the field of biology; to motivate and to direct the student in the principles of research, both in the laboratory and in literature, always with a view to promoting intellectual honesty. Courses can be used in preparation for health care fields.

## Major Field of Concentration

All students majoring in Biology must take two semesters of general biology (BL 1250/1251 and BL 1300/1301), Genetics (BL 3610), Introduction to Research (BL 3910), and Advanced Principles of Biology (BL 4940). Students must also complete coursework in one of two tracks offered by the Biology Department. The macrobiology track is recommended for students considering post-graduate professional schools such as medicine, physical therapy, occupational therapy, or graduate studies emphasizing anatomical, physiological, evolutionary, and ecological aspects of living organisms. The cell and molecular track is recommended for students intending to pursue graduate studies in cellular and molecular biology.

## Macrobiology Track Requirements

BL 1250/1251 or BL 1260/1261	General Biology I or Honors Biology	3/1
BL 1300/1301	General Biology II	3/1
BL 3610	Genetics	3
BL 3200/3201	Invertebrate Zoology	2/1
BL 3350/3351	Plant Biology	2/1
BL 3400/3401	Comparative Vertebrate Anatomy	3/1
BL 3700/3701	General Physiology	3/1
BL 3xxx or BL 4xxx	One elective from Group D	3-4
BL 4xxx or BL 5xxx	One elective from Group E	3-4
BL 3910 or option	Introduction to Research	1
BL 4940	Advanced Principles of Biology	3
	Total hours	35-37
<b>Group D</b>		
BL 3620/3621	Cell Biology	3/1
BL 3650	Molecular Biology	3
BL 3100/3101	Microbiology	3/1
BL 4420/4421	Histology	3/1

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BL 4700	Immunology	3
<b>Group E</b>		
BL 4810 (4811)	Ecology	3 + optional 1 hr. lab
BL 4800	Evolution	3
BL 5400/5401	Gross Anatomy	4/1 (Requires acceptance to PT/OT)

### Cell and Molecular Biology Track Requirements

BL 1250/1251 or BL 1260/1261	General Biology I or Honors Biology	3/1
BL 1300/1301	General Biology II	3/1
BL 3610	Genetics	3
BL 3620/3621	Cell Biology	3/1
BL 3650	Molecular Biology	3
BL 4600	Biotechnology	3
BL 3xxx	One elective from Group A	3-4
BL 3xxx/4xxx	One elective from Group B (not from A)	3-4
BL 4xxx	One elective from Group C	3-4
BL 3910 or option	Introduction to Research	1
BL 4940	Advanced Principles of Biology	3
	Total hours	34-37

#### Group A

BL 3100/3101	Microbiology	3/1
BL 3200/3201	Invertebrate Zoology	2/1
BL 3350/3351	Plant Biology	2/1

#### Group B

BL 3100/3101	Microbiology	3/1
BL 3200/3201	Invertebrate Zoology	2/1
BL 3350/3351	Plant Biology	2/1
BL 3400/3401	Comparative Vertebrate Anatomy	3/1
BL 3450/3451	Embryology & Developmental Biology	3/1
BL 3700/3701	General Physiology	3/1
BL 4200	Parasitology	3

#### Group C

BL 4800	Evolution	3
BL 4810 (4811)	Ecology	3 + optional 1 hr. lab

Students are urged to consult with the department regarding their program of study as early in their academic careers as they can (during freshman year if possible). A grade of C or better is required in each upper-division course of the major. (A grade of C- will not satisfy the requirement.) Those students interested in pursuing graduate or professional degree studies are strongly encouraged to complete CH 3210/3220 and CH 3230/3240 Organic Chemistry I/II, CH 3450 Analytical Chemistry, MT 1800 Calculus I, PH 2800/2810 and PH 2900/2910 General Physics I/II, PY 2100 Introduction to Statistics for the Behavioral Sciences and computer proficiency.

### Minor Field of Concentration

The biology department offers five distinct tracks to complete a minor. It is also possible for a student and adviser to design a unique track using various 3000- and 4000-level

biology courses. The minors will have a biology designation rather than the specific track on the student's transcript. All biology minors require BL 1250/1251 or BL 1260/1261 as a prerequisite. A grade of C or better is required in each upper-division course of the minor. (A grade of C- will not satisfy the requirement.)

**General track:** This track is recommended for education majors, or anyone wishing breadth in introductory biology. The student must take BL 1300/1301, BL 3200/3201, BL 3350/3351, and BL 4810, and a minimum of one of the following: BL 3100/3101, BL 3610, or BL 4800.

**Ecological track:** This track is for students interested in environmental issues, or for related areas like economics or global studies. The student must take BL 1300/1301, BL 3200/3201, BL 3350/3351, and BL 4810, and either BL 3230 or BL 4800.

**Cellular track:** This track is for physical science majors, psychology majors interested in areas such as genetic counseling and health science majors who have enough credits to obtain a minor. (An MOT/MPT aspirant who enters those programs normally has the MOT/MPT courses as a related area but also can choose another minor/related area.) The student must take BL 3200/3201 and BL 3620/3621, and two courses chosen from the following: BL 3100/3101, BL 4200, BL 3610, or BL 3450/3451.

**Animal morphology track:** This track is for physical science majors and health science majors who have enough credits to obtain a minor. (An MOT/MPT aspirant who enters those programs normally has the MOT/MPT courses as a related area but also can choose another minor/related area.) The student must take BL 3200/3201, BL 3400/3401, and BL 3450/3451, and either BL 3700/3701 or BL 5400/5401.

**Physiological track:** This track is for pre-professional or business majors, particularly in marketing and sales areas. This interdisciplinary minor is intended for students not majoring in either biology or psychology but disciplines such as chemistry, physics, or mathematics; some health science majors or any other student with an interest in neurophysiology and cognitive processes. The minor will have a biology designation on the student's transcript. The student must have completed PY 1000 Introduction to Psychology as well as BL 1250/1251 or BL 1260/1261 as prerequisites and take BL 3620/3621, BL 3700/3701, PY 3300 Behavioral Neuroscience and PY 3350 Psychology of Perception.

Several of the courses in this department are offered only once a year. Students should consult departmental faculty for any changes that may have been made in this list. Typically the courses listed below are offered either once a year, or in alternate years. Other departmental courses, with a few exceptions, are offered each semester.

#### Fall only

Honors General Biology I  
 Human Anatomy and Physiology II  
 Accelerated Human Structure and Function  
 Plant Biology  
 Comparative Vertebrate Anatomy  
 Molecular Biology  
 Ecology  
 Gross Anatomy  
 Animal Behavior (odd years only)

#### Spring only

Human Anatomy & Physiology I  
 Invertebrate Zoology  
 Cell Biology  
 Biotechnology  
 Embryology  
 Evolution  
 Histology (odd years only)  
 Parasitology (odd years only)  
 General Physiology

- BL 1000. Fundamentals of General Biology** (5)  
A course covering the basic concepts of a general biology course including cellular chemistry, cell organelles, mitosis, meiosis, energy relationships, photosynthesis, glycolysis, fermentation, aerobic respiration, genetics, population and community ecology. Additionally a survey of major organ systems in animals is covered. Entire course taught from a modern evolutionary point of view. Laboratory required. (A two-semester course is taught only as part of the Advanced College Credit Program.)
- BL 1150. Biology of the Contemporary Scene** (3)  
A course for non-science majors covering basic biological concepts and their application to current problems and philosophies. Lecture and discussion. Course is offered both semesters. For non-science majors. Concurrently: BL 1151. (SCI)
- BL 1151. Biology of the Contemporary Scene Lab** (1)  
A laboratory course to be taken concurrently with BL 1150. This course provides laboratory exercises requiring the use of the scientific method to understand biological concepts. Emphasis is placed on approaches used by scientists to study biological problems. For non-science majors. Lab fee. Concurrently: BL 1150. (SCI)
- BL 1250. General Biology I** (3)  
This course addresses selected basic biological concepts and principles within the framework of the scientific method and modern evolutionary theory. Emphasis is on cellular biology with topics including the basic chemistry, structure, regulation, energy transformation, photosynthesis, respiration, reproduction and genetics of living systems. Coverage includes those cellular principles most important to the understanding of living organisms and (along with BL 1300 and 1301) provides the student with the foundation for the remainder of the courses of the department. Course is offered both semesters. Concurrently: BL 1251. (SCI)
- BL 1251. General Biology I Lab** (1)  
A laboratory course to be taken concurrently with BL 1250. Exercises reinforce concepts taught in BL 1250. Lab fee. Concurrently: BL 1250. (SCI)
- BL 1260. General Biology I, Honors** (3)  
A course in basic biological concepts and principles. In addition to the concepts covered in BL 1250, the course emphasizes independent investigative methods and the development of critical scientific methodology. Course is offered fall semesters. Prerequisite: Acceptance into honors program or department approval. Concurrently: BL 1261. (SCI)
- BL 1261. General Biology I Lab, Honors** (1)  
Laboratory experiences emphasize independent research topics and development of research skills. Lab fee. Concurrently: BL 1261. (SCI)
- BL 1300. General Biology II** (3)  
This second semester general biology course focuses on ecological and evolutionary concepts. Select phyla from all kingdoms are used to illustrate various concepts. Development of tissues, cells, and organs in various phyla are examined to illustrate the variety of mechanisms life forms have evolved to deal with issues such as: multicellularity, respiration, excretion, circulation, digestion, reproduction, sensory stimuli, protection, water and salt balance, movement, and defense. Lecture meets three hours per week. Course is offered both semesters. Prerequisite: BL 1250/1251. Concurrently: BL 1301.
- BL 1301. General Biology II Lab** (1)  
Labs meet weekly for three hours and support concepts taught in lecture. Course is offered both semesters. Lab fee. Prerequisite: BL 1250/1251. Concurrently: BL 1300.
- BL 2830. Introduction to Human Anatomy and Physiology I** (4)  
Introduction to anatomy and physiology of the human body. The course is designed specifically for Nursing students. (Pre-MPT or MOT students should not take this course.) Contents include General Biology topics such as cell chemistry, cell organelles, Mendelian genetics, elementary principles of ontogeny, mitosis and meiosis are included. Using a focus on homeostasis and normal anatomy and physiology, the course also includes the tissues, integumentary, nervous, skeletal, muscular and cardiovascular systems. Considerable focus on the composition and maintenance of body fluids. Course is offered spring semesters. CH 1050/1060 pre- or co-requisite or approval. Concurrently: BL 2831.
- BL 2831. Introduction to Human Anatomy and Physiology I Lab** (1)  
Human anatomy is emphasized in the laboratory, and studied in part through the dissection of a small mammal (cat, rabbit, etc.). Lab fee. Concurrently: BL 2830.
- BL 2840. Introduction to Human Anatomy and Physiology II** (3)  
Continuation of the introduction of anatomy and physiology of the human body with an emphasis on the interrelationships of the functioning of all the systems. Course covers the remaining systems including the endocrine, immune, respiratory, renal, digestive, reproductive. Course is offered fall semesters. Prerequisite: BL 2830. Concurrently: BL 2841.
- BL 2841. Introduction to Human Anatomy and Physiology II Lab** (1)  
The lab supports concepts and systems covered in the lecture. Human anatomy is emphasized in the lab and experimentation involves concepts with the endocrine, immune, respiratory, renal, digestive, and reproductive systems. Lab fee. Prerequisite: BL 2830 or instructor approval. Concurrently: BL 2840.

- BL 2850 (NU 2850). Pathophysiology** (3)  
This course focuses on alterations in biologic processes that affect the body's internal homeostasis. A conceptual approach is used to emphasize general principles of pathophysiology. The etiology, pathogenesis, clinical manifestations and sequelae of various alterations of human structure and function are examined. Knowledge from the basic and clinical sciences are integrated. Prerequisites: CH 1050/1060, BL 2840, BL 3100 or concurrent.
- BL 2930. Human Anatomy and Physiology I** (3)  
Introduction to the anatomy and physiology of the human body. The course begins with a review of homeostasis, basic histology and the general body plan. The integumentary, skeletal, muscular, cardiovascular, respiratory and immune systems are then covered in detail. The study of each of these systems is organized around the central concept of homeostasis. Considerable time is devoted to the composition and maintenance of body fluids. Course is offered spring semesters. Prerequisite: BL 1250 or equivalent or approval. Concurrently: BL 2931.
- BL 2931 Human Anatomy and Physiology I Lab** (1)  
The lab supports concepts and systems covered in the lecture. Human anatomy is emphasized in the lab and studied in part through the dissection of the cat. Lab fee. Prerequisite: BL 1250 or equivalent or approval. Concurrently: BL 2930.
- BL 2940. Human Anatomy and Physiology II** (3)  
Sequential course to BL 2930. Includes discussion of the anatomy and physiology of the remaining systems, including respiratory, endocrine, digestive, immunological, reproductive, and renal. Overview of the embryology of each system is also included. Course is offered fall semesters. Prerequisite: BL 2930 or equivalent or approval. Concurrently: BL 2941.
- BL 2941. Human Anatomy and Physiology II Lab** (1)  
Reinforces material covered in BL 2940 using experiments, models and prosections. Lab fee. Concurrently: BL 2940.
- BL 2960. Accelerated Human Structure and Function** (3)  
A one-semester accelerated course in human anatomy and physiology. The coverage is the same as BL 2930 and 2940 combined, but is designed for the student with some background in the subject. Course is offered fall semesters. Prerequisite: a course in anatomy or physiology; or anatomy and physiology; and approval of the instructor or the Office of the Dean, College of Arts and Sciences. Concurrently: BL 2961.
- BL 2961. Accelerated Human Structure and Function Lab** (1)  
A lab course reinforcing material covered in BL 2960 and using experiments, models, dissections and prosections. Two laboratory sessions per week. Lab fee. Concurrently: BL 2960.
- BL 3100. Microbiology** (3)  
The morphology, physiology and nutrition of micro-organisms and their role in nature and infection and immunity. Course is offered fall and spring, and occasional summer semesters. Prerequisite: BL 1250 or BL 2830. Concurrently: BL 3101.
- BL 3101. Microbiology Lab** (1)  
A study of the techniques of microbiology, isolation, cultivation, observation, identification and immunological principles and practices. Lab fee. Concurrently: BL 3100.
- BL 3200. Invertebrate Zoology** (2)  
An in-depth study of the form, phylogenetic relationships, ecology, anatomy, special adaptation and evolution of protists and animals. Course is offered spring semesters. Prerequisite: BL 1250 or equivalent. Concurrently: BL 3201. (SCII)
- BL 3201. Invertebrate Zoology Lab** (1)  
Reinforces concepts from BL 3160 through microscope work, dissections and observations of living invertebrates. Lab fee. Concurrently: BL 3200. (SCII)
- BL 3230. Animal Behavior** (3)  
An ethnological course studying the mechanics and evolution of behavior. The course includes historical ethology and its arguments; basic neural mechanisms; releasers; sign stimuli; learning theory; complex individual and social behaviors; species interactions and the evolution of behavior. Course is offered odd-year fall semesters. Prerequisite: PY 1000 Introduction to Psychology or approval. BL 1250 is recommended.
- BL 3350. Plant Biology** (2)  
Introduction to the structure, functions, classification and phylogeny of the plant kingdom. Course is offered fall semesters. Prerequisite: BL 1250 or equivalent. Concurrently: BL 3351.
- BL 3351. Plant Biology Lab** (1)  
Reinforces concepts learned in BL 3300 through experiments and observation of living and preserved plants. Lab fee. Concurrently: BL 3350.
- BL 3400. Comparative Vertebrate Anatomy** (3)  
A comparative study of the structure, function and development of vertebrate organ systems. Some emphasis is also placed on theories concerning the evolution of vertebrates based on anatomical comparisons. Prerequisite: BL 1250 or equivalent. Concurrently: BL 3401.
- BL 3401. Comparative Vertebrate Anatomy Lab**(1)

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Emphasizes, through dissection, the comparative and functional anatomy of organ systems in the shark, amphibian (salamander), reptile (turtle), bird and mammal (cat). Emphasis is also placed on dissection technique. Lab fee. Concurrently: BL 3400.

**BL 3430. Seminar in Genetics** (1)

A discussion of genetics papers of historical and current interest. Prerequisite: BL 3610 or concurrently.

**BL 3450. Embryology and Developmental Biology** (3)

The study of the origin and development of organisms (with emphasis on animals) through consideration of the embryonic processes and study of successive changes producing adult forms. Emphasis in lecture is on the nature of the processes which initiate and control development. Some time is also spent examining other developmental processes including aging, cancer and birth defects. Prerequisite: BL 2930 or BL 3400 or instructor approval. Concurrently: BL 3451.

**BL 3451. Embryology and Developmental Biology Lab** (1)

Emphasis in lab is on the sequential structural changes (morphogenesis) which occur during embryonic development in selected organisms including the sea urchin, frog, chick and pig. Some lab time is also devoted to experimental analysis of development. Lab fee. Concurrently: BL 3450.

**BL 3610. Genetics** (3)

*Fall and Spring semester*

A study of the principles of heredity and the operation of hereditary factors in the development of plants and animals. Lecture three hours a week. Prerequisite: BL 1250, CH 2610, equivalent or instructor approval.

**BL 3620. Cell Biology** (3)

A study of the structure, chemical and molecular, and function of the cell. While the eukaryotic cell and its components is the primary consideration, procaryotic cells are studied and compared with their evolved descendants. Prerequisites: BL 1250 or equivalent. Concurrently: BL 3621 and CH 3210 or equivalent or instructor approval.

**BL 3621. Cell Biology Lab** (1)

The student is introduced to those investigative techniques which are used in molecular and cell studies such as Gel Electrophoresis, Affinity Chromatography, Enzyme and ELISA assays, Blotting Techniques, Polymerase Chain Reaction, Genetic Engineering, DNA Fingerprinting, Cell Surface Receptor Identification and other pertinent techniques unique to cell investigation. Lab fee. Concurrently: BL 3620.

**BL 3650. Molecular Biology** (3)

A combined lecture and laboratory for the study of

the chemical nature of DNA and the mechanisms and effects of gene expression. The molecular biology of prokaryotic organisms, eukaryotic organisms, and viruses will be examined, with an emphasis on genetic recombination, mapping, and expression. Advanced topics, such as the genetics of cancer and developmental genetics, will be approached through the analysis of current research in these fields. Prerequisite: BL 3610.

**BL 3700. General Physiology** (3)

A comparative study of variations in, and adaptation to, physiological problems presented to animals and plants. Although cell physiology is noted, emphasis is placed upon the organismic level. All eleven systems are covered. Prerequisites: BL 3620 or instructor approval. Concurrently: BL 3701.

**BL 3701. General Physiology Lab** (1)

A laboratory course to reinforce the concepts learned in BL 3700. Lab fee. Concurrently: BL 3700.

**BL 3900. Biology Field Trip** (2)

An opportunity for biology majors to be exposed to the major ecosystems of North or Central America. A two-week intensive field experience that is prefaced by a semester-long weekly seminar discussing the uniqueness and general ecology of each ecosystem/biome to be visited on the trip. Areas visited have included Florida and the Keys, the desert southwest, montane regions of Colorado, Yellowstone National Park, and the Boundary Waters of Minnesota. One credit hour for the seminar and one credit for the field trip. Under extraordinary circumstances a student may take, with permission, the course for one credit hour for both seminar and trip. No more than 4 hours from this listing may be counted towards a biology major for any individual student.

**BL 3910. Introduction to Research** (1)

A course in the proper approach to research including library utilization, computer "search techniques" and experimental design. Each student is taught to complete all the steps necessary to implement a scientific research program. Prerequisite: Sophomore standing.

**BL 3960. Biology Seminar** (1)

Presentations by junior and senior students on a topic chosen each semester. Students are taught basic library search skills and are familiarized with Linda Hall Library. Attendance is open to all faculty and students.

**BL 3990. Research Projects, Introductory** (1-3)

The student plans and attempts a series of original laboratory investigations of a scientifically significant problem planned in weekly consultation with the supervising faculty member, conducts the necessary literature searches, maintains a professional style laboratory notebook, makes at least one oral presentation of results, and prepares a research report

according to standards established by the department. Lab fee. Prerequisite: Instructor approval.

**BL 4200. Parasitology** (3)

A combined lecture and laboratory for the study of animal parasites. Emphasis includes the evolution of parasitism, host-parasite ecology, parasites important to humans and diagnostics. Lab fee. Prerequisite: BL 1300 or equivalent or instructor approval.

**BL 4300. Plant Diversity** (3)

Principles of classification of plants, use of keys, identification of local angiosperm flora. Prerequisite: BL 3350 or equivalent or instructor approval. Concurrently: BL 4301.

**BL 4301. Plant Diversity Lab** (1)

The laboratory includes several field trips to study the plants in their natural habitat. Lab fee. Concurrently: BL 4300.

**BL 4420. Histology** (3)

The functional anatomy of vertebrate tissues. Emphasis in lecture is placed on general and specific characteristics of tissues on both microscopic and ultramicroscopic levels, development of tissues (histogenesis) and changes in tissues occurring during an organism's lifetime. Offered spring semesters of even-numbered years. Prerequisite: BL 3400 or equivalent. Concurrently: BL 4421.

**BL 4421. Histology Lab** (1)

The laboratory emphasizes practical aspects of histology including microscopy, histochemistry and histopathology. Lab fee. Concurrently: BL 4420.

**BL 4600. Biotechnology** (3)

A study of the techniques that are being used to rapidly advance the fields of molecular biology, medicine, genetics, and all of the biological sciences. This course combines lecture with laboratory to fully teach the theory and application of current techniques for exploring cell and molecular biology. Techniques considered will include DNA sequencing, restriction mapping, protein and DNA purification, cell culture, bioinformatics and other modern techniques. Lecture and laboratory. Lab fee. Prerequisite: BL 3610 or equivalent.

**BL 4700. Principles of Immunology** (3)

A combined lecture and laboratory which studies the mechanisms involved in the response of organisms to foreign organisms or other agents. Specific and non-specific factors in immunity, natural and artificial immunity, the nature of antigens and antibodies and their reactions both in vivo and in vitro, immunogenetics, as well as the immunology of tumors and grafts are considered. Lab fee. Prerequisite: BL 1250 or equivalent or instructor approval.

**BL 4710. Human Reproductive and Developmental Physiology** (2)

A short course on the biology of human reproduction from gamete production and fertilization to implantation; formation of the embryo and the

necessary physiology for the maintenance of both the maternal and fetal units in gestation. Prerequisite: BL 2940 or BL 2960 or BL 3400 or instructor approval.

**BL 4800. Evolution** (3)

A study of the evidence and mechanisms of evolution of all organisms. Basically a course in the theory of evolution including Hardy-Weinberg equilibria, genetic drift, niches and geographic, genetic and biological speciation. Prerequisite: BL 1300 or equivalent or approval. (SCII)

**BL 4810. Ecology** (3)

A study of the composition, dynamics, development and distribution of the abiotic and biotic parameters of natural populations and communities. Lecture three hours a week. Prerequisites: BL 3200, BL 3350 or instructor approval.

**BL 4811. Ecology Laboratory** (1)

Field-intensive course with instruction in proper applications of statistics to ecological problems, sampling techniques in forest, grasslands, streams, ponds and lakes, and sampling from major taxons of plants, animals, fungi and protista. Lab fee. Concurrently: BL 4810 or department approval.

**BL 4940. Advanced Principles of Biology** (3)

The capstone course for biology will incorporate student-led seminars as starting points for discussions reviewing and integrating the major concepts of biology as applied across all kingdoms. Seminar and discussion. Prerequisite: Senior standing.

**BL 4990. Research Projects, Advanced** (1-3)

The student plans and attempts a series of original laboratory investigations of a scientifically significant problem planned in weekly consultation with the supervising faculty member, conducts the necessary literature searches, maintains a professional style laboratory notebook, makes at least one oral presentation of results, and prepares a research report according to standards established by the department. Lab fee. Prerequisite: Instructor approval.

**BL 5400. Gross Anatomy** (4)

An integrated regional approach to the study of the structure and function of the human body, with emphasis on the musculoskeletal and peripheral nervous system. The study of the fundamental tissues, organs, and other systems of the body cavities is also included. Prerequisite: acceptance into occupational therapy education or physical therapy education program. Concurrently: BL 5401.

**BL 5401. Gross Anatomy Lab** (1)

Meets twice a week. Reinforces concepts from lecture through prosected material, bony specimen, radiographs, and palpation of living subjects and supervised dissection of human cadavers. Lab fee. Concurrently: BL 5400.

See Natural Sciences section for additional course offerings.

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# BUSINESS COMMUNICATION

(Department of Communication and Fine Arts)

*Professor*      Weslynn S. Martin, M.A.  
*Assistant Professor*      Michael McDonald, Ph.D. (Chair)  
Peter Bicak, Ph.D.

The business communication degree program is an inter-disciplinary major that combines coursework in English, business and communication. The Bachelor of Arts degree will be conferred upon completion of the prescribed curriculum.

Its goal is consistent with the role and scope of the Rockhurst University tradition of developing sound academic programs to meet the needs of the community and of developing programs that will enhance the job outlook for the liberal arts graduate. There is unity in the program through the integrated coursework that explores various means by which a liberal arts student may apply education to professions and careers or graduate study.

The curriculum is not designed to develop an expertise in any specific area, but its value resides in the approach of rather extensive coverage in a variety of pertinent areas. As the curriculum is prescribed, it encompasses a number of core courses and electives which are chosen in consultation with the major adviser.

## Major Field of Concentration

The prerequisites include AR 1400 Basic Photography; CT 2000; CT 2040; CT 1220 (TA 1220) or CT 3190; CT 2200; EN 1110 and EN 1120 College Composition I and II; AC 2000 Financial Accounting; EC 2000 Principles of Macroeconomics; EN 3180 Business Writing (or EN 3160 Writing for the Marketplace); JN 2000 Introduction to Journalism; MG 1900 Business Leadership and Social Issues; computer competency; statistics; and two semesters of college-level study of one language other than English. The language requirement may be fulfilled by completing two semesters of college-level literature in one language other than English.

Three options are available in the communication coursework for this major:

- 1) **Communication theory option:** Required upper-division courses are CT 3000 or CT 3300; a choice of CT 3840, CT 3850, CT 4350; CT 4860; CT 4870 or an approved Special Topics in Communication course; CT 4940 Senior Capstone.
- 2) **Media option:** Required upper-division courses are CT 3840 or CT 4860; and two choices: CT 3880 and CT 3900 or CT 4890 and CT 4940.
- 3) **Arts management option:** Required courses include AR 1110 or AR 1120 Introduction to Art History I or II; MS 1000 Introduction to Music or MS 3410 Music in the 20th Century; TA 1000 Introduction to Theatre Arts; CT 3300 or CT 4860; CT 4940; and three upper-division courses in one particular fine or performing art. Students are required to participate in either a capstone or culminating exhibit or performance approved by the artistic advisor prior to graduation.

For all three options, upper-division English courses required are EN 4180 Report Writing; EN 4920 Report Project or approved options; and any 3000-4000 level English or Journalism writing course. The upper-division business courses required are FN 3000 Essentials of Finance; MK 3000 Principles of Marketing; and two other upper-division MK or MG electives.

A grade of C or better is required in composition and writing courses. A grade of C or better is required in each upper-division course of the major. (A grade of C- will not satisfy the requirement.)