

# NEW PROGRAM CONCENTRATION 5/13/08

## Biological Science: Laboratory Animal Care Concentration Associate of Arts Degree

### 1. Program Name

Biological Science: Laboratory Animal Care Concentration

### 2. Purpose and Objective

The biomedical research facility is at the forefront of medical discovery and serves as one of the primary settings in which a laboratory animal technician works. At research facilities, laboratory animal technicians and veterinary technologists typically work under the guidance of veterinarians, research physicians and other laboratory technicians as a member of an animal care team.

#### *Coursework Objectives*

- Understand and explain the evolutionary relationships between the major groups of animals, their relationships with their habitats, and with other groups of organisms;
- Identify the appropriate external and internal structures and their functions in representative organisms, with emphasis on the vertebrates;
- Identify some of the distinguishing characteristics of the major animal groups studied, and be able to recognize and/or give examples of organisms belonging to these major groups;
- Identify using the microscope and diagrams, representative examples of the major somatic tissue groups, and to demonstrate understanding of their characteristics, functions, and location in the vertebrate organism;
- Recognize some of the factors which influence human health, and the causes and symptoms of some common human diseases;
- Learn and demonstrate lab skills associated with the objectives listed above;
- Be able to explain the basic concepts of biology in written and oral form;
- Apply the concepts learned to better understand the biological world and the problems that affect our society, in general, and the life of the individual student, in particular.

In addition, through the internship the students will gain additional knowledge on applied biology of lab animals (e.g., nutrition, environmental stressors, genetics and breeding, animal diseases and preventive medicine practices, manipulative skills, occupational safety).

### 3. Curriculum Outline:

<u>Course Number</u>	<u>Course</u>	<u>Prerequisites</u>	<u>Credits</u>
<b>First Semester</b>			
ACS 100	College Survival Seminar		1
ENG 101	English Composition I	ENG099 or placement	3
CIS 141	Microcomputer Applications	ENG097	3
SCI 103	Biology I	SCI099(orPlacement);MAT098; ENG101	4
SSI	Social Science Elective (Group I)		3
General Elective			3

### Second Semester

ENG 102	English Composition II	ENG101	3
MAT 120	Intro to Statistics (or MAT103)	MAT099 or placement	3
SCI 104	Biology II	SCI103	4
HUM	Humanities ELECTIVE		3
SSI	Social Science ELECTIVE (Group II)		3

### Third Semester

SCI 123	Principles of Chemistry I	MAT099;ENG101	4
SCI 201	Anatomy&Physiology I	SCI103;SCI121orSCI123(co-req)	4
ENG	Literature ELECTIVE		3
SSI	Social Science ELECTIVE (Group II)		3

### Fourth Semester

SCI 124	Principles of Chemistry II	SCI123	4
SCI 202	Anatomy&Physiology II	SCI201	4
HUM	Humanities ELECTIVE		3
SCI 299	Science Internship(in Laboratory Animal Care)		3

---

Total: 61

\*NOTE: Students planning on transferring to a four year college will be advised that many schools require two semesters of foreign language study and should select appropriate Humanities electives.

#### 4. Need

Currently, there is a strong demand for graduates from veterinary technology programs. In 2004 the Department of Labor listed veterinary technicians as one of the fastest-growing careers in health care occupations. *Veterinary technicians* can find employment in veterinary practices, biomedical research, education, zoo/wildlife medicine, industry, military, livestock-health management, pharmaceutical sales and business ownership. The demand for fully trained, competent animal care technicians in the field of laboratory animal science only will increase as the need for more medical and scientific advances continues to grow. This is especially true in Massachusetts where life sciences continues to thrive as one of the dominant sectors of the state's economy.

#### 5. Context

There are primarily two levels of education and training for entry into a career as a laboratory animal technician: a two-year program for veterinary technicians or animal care technicians, and a four-year program for veterinary technologists. Fast-track entry-level veterinary technicians hold a two-year degree such as an associate's degree from an accredited community college program similar to the program of study we hope to establish at RCC. Offered as part of the program are summer internships and full semester internships in laboratory animal care within local biomedical research facilities. As a supplement to the program, the American Association for Laboratory Animal Science also offers

certification program at three levels of technician responsibilities in animal husbandry, facility management and animal health and welfare.

Technologists and technicians usually begin work as trainees in routine positions under the supervision of an animal facility manager. Entry-level workers who arrive with extensive hands-on experience with a variety of laboratory equipment including diagnostic and medical equipment and advanced skills usually require shorter periods of on-the-job training.

As technologists and technicians gain experience supplemented by attending research meetings and training sessions on all aspects of laboratory animal care, they assume more responsibility and perform more assignments under less personal supervision. Some of these individuals eventually can become supervisors or managers. Salaries are determined by education, certification levels and experience, with entry level positions starting at \$12.00 per hour to more than \$25.00 per hour at the senior supervisory levels.

## 6. Transferability

Since this program is a concentration of Biological Science, students would be eligible to transfer to all programs at four year institutes that currently have joint admissions and transfer articulation accept the Biological Science at Roxbury Community College (refer to College Catalog: UMass Amherst, Boston, Dartmouth, Lowell; Bridgewater State College; Framingham State College; Mass College of Liberal Arts; Salem State; Westfield State), in addition we will be working on articulation agreements.

### *Currently Posted Jobs in Laboratory Animal Care*

Tufts University Laboratory Animal Caretaker	University of Connecticut Storrs, CT Animal Care Manager
Harvard University Manager of Animal Care	SmartCells, Inc. Beverly, MA.
Harvard Medical School Manager of Training	InVivo/Pharmacology Research Associate
AVEO Pharmaceuticals Cambridge, MA Animal Facility Manager	Hartford Hospital Hartford, CT area Veterinary Technician
Biogen IDEC Cambridge, MA Sr. Tech I, Animal Technology	AVEO Pharmaceuticals Cambridge, MA Research Animal Care Technician
Biogen IDEC Cambridge, MA Tech 1, Animal Care	McLean Hospital Belmont, MA Animal Facility Manager

## 7. Admission and Retention Criteria

Applicants to the program must have a high school diploma or its equivalent and must adhere to course prerequisite requirements.

The progress of the students in this program will be closely monitored by the faculty and especially by the advisors. Every effort will be made to assist students in achieving their educational goals.

### **8. Program Diversity**

The Laboratory Animal Care concentration is open to all current and prospective RCC students who meet the prerequisites for the college and the program. This program is well suited to serving a diversity of demographics and interests.. This program may appeal to many of the students interested in caring for animals and an alternate science field to nursing or health care options.

### **9. Faculty**

The division currently has sufficient full-time (10) and adjunct faculty to support the program. The MST Division is currently hiring two replacement full-time faculty (life science and chemistry) to start this Fall 2008.

### **10. Administration and Operation**

The program will run under the administration, supervision and management of the Math, Science and Technology Division's administrators, faculty and staff.

### **11. Resources**

The students are required to take Anatomy & Physiology 1 and 2 for their science lab electives, and RCC has the laboratories and faculty (full-time and adjunct) to teach these courses.