APPENDIX

TO SENATE AGENDA OF FEBRUARY 15, 2005

DEPARTMENT OF BIOLOGY:

Rationale/Justification for Reinstatement of the "3+1" Program in Medical Technology as a cooperative program between Francis Marion University and McLeod Regional Medical Center School of Medical Technology

This is a proposal to re-instate a program approved in the past by Francis Marion University, McLeod Regional Medical Center and the South Carolina Commission on Higher Education. In contrast to the previous B.S. degree in Medical Technology, however, this proposal allows the completion of a Biology Degree with emphasis in Medical Technology. The student can finish the 3 + 1 program in four years, rather than the current five years required for the 4 + 1 program. The student would still have the option of obtaining a BS in Biology and then taking the clinical year (4+1).

SCHOOL OF EDUCATION:

Justification for changes A & B: To improve quality of our candidates, we are increasing the number of requirements. The written philosophy statement will give us an indication of the applicant's ability to express his/her thoughts on education in written format. We will use a rubric to score the candidate's written expression ability and determine if referral to our writing center is needed. The interview requirement will enable us to "get to know" our candidates in a one-on-one setting and develop a course sequence to suit his/her needs (whether part-time of full-time).

Justification for change C: The previous M. A. T. program included both undergraduate and graduate requirements, one of which was attaining formal admission to the Professional Education Program. Our current M.A.T. program no longer has an undergraduate component, thus this reference to the undergraduate program should be deleted.

FRANCIS MARION UNIVERSITY: DESCRIPTION OF PROPOSED NEW COURSE or MODIFICATION OF AN EXISTING COURSE

Department/School Biology Date 01-18-05

Course No. or level 495 496 Title Medical Technology Internship

Semester hours 15 + 15 Clock hours: Lecture 8/wk Laboratory 32/ wk

Prerequisites completion of 3 nine-month academic years of undergraduate studies (or equivalent)
Enrollment expectation 5/year

Indicate any course for which this course is a(an)

modification
(proposed change in course title, course description, course content or method of instruction)

substitute
(The proposed new course replaces a deleted course as a General Education or program requirement.)

alternate
(The proposed new course can be taken as an alternate to an existing course.)

Name of person preparing course description Larry Joe McCumber

Department Chairperson's/Dean's Signature

Date of Implementation Fall 2005
Date of School/Department approval December 7, 2004
Catalog description.

Purpose: 1. For Whom (generally?)
2. What should the course do for the student?

Teaching method planned:

Textbook and/or materials planned (including electronic/multimedia:

Course Content: (Please explain the content of the course in enough detail so that the Academic Affairs Committee can make an informed judgement. Include a syllabus for the course.)

When completed, forward to the Office of Provost.

9/03

Catalog Description

Biology 495 and 496 Medical Technology Internship: Internship for a minimum of twelve months under the direction of hospital instructional staff. Course work will include 4 hours Clinical Hematology, 2 hours Clinical Hemostasis. 2 hours Instrumentation and Methods, 4 hours Clinical Chemistry, 4 hours Clinical Microbiology, 3 hours Mycology, Parasitology, Virology, 2 hours Clinical Microscopy, 4 hours Immunohematology, 3 hours Clinical Immunology, 2 hours Medical Laboratory Systems. Prerequisites: Completion of 3 year academic portion of 3+1 program. Fifteen semester hours per course.

Purpose

1. These courses are for qualified students who have completed the 3 year academic portion of the 3+1 option with the appropriate prerequisite courses.

2. These courses are designed to allow the student to complete the clinical year of the 3+1 program in Medical Technology and become eligible to test for national certification.

Teaching Method Planned

The clinical year internship is a rigorous hands-on learning, doing, teaching experience in the clinical laboratory. One on one transfer of knowledge is routinely utilized in the laboratory. Students also attend 8 hours per week of didactic lecture.

Textbook/Materials

A variety of Clinical Laboratory Manuals and Texts associated with the spectrum of clinical disciplines, outlined in the course content below, are utilized. A large number of procedures and methodologies are taught using a variety of state of the art instruments.

See addendum for a list of textbooks and materials used during the clinical year.

Course Content

McLeod School of Medical Technology
McLeod Regional Medical Center

CURRICULUM OUTLINE

The fifty-one week program integrates classroom lectures and practical experience. Students receive practical experience in each department of the clinical laboratory. Schedules are rotated to give students several weeks to learn the basic techniques of each department. Credit will be given for the following courses:

Courses	Semester Hours
MT 405 – Clinical Hematology	4
MT 410 – Clinical Hemostasis	2
MT 415 – Instrumentation and Methods	2
MT 420 – Clinical Chemistry	4
MT 425 – Clinical Microbiology	4
MT 430 – Mycology, Parasitology, and Virology	3
MT 440 – Clinical Microscopy	2
MT 450 – Immunohematology	4
MT 455 – Clinical Immunology	3
MT 460 – Medical Laboratory Systems	2
TOTAL	**30**

See addendum for description of courses.

McLEOD REGIONAL MEDICAL CENTER
SCHOOL OF MEDICAL TECHNOLOGY
P.O. BOX 100551
FLORENCE, SOUTH CAROLINA 29501-0551

TEXTBOOKS FOR THE 2004 - 2005 PROGRAM TO BE OBTAINED FROM RITTENHOUSE

Author/Editor	**Description of Textbook**
Strasinger	Urinalysis and Body Fluids: A Self Instructional Approach, 4th Ed. F.A. Davis, 2001, ISBN 0-8036-0793-8
Henry Laboratory	Clinical Diagnosis and Management by Methods, 20th Ed. W.B Saunders, 2001, ISBN 0-7216-8864-0
Turgeon	Immunology and Serology in Laboratory Medicine, Mosby, 3rd Ed, 2003, ISBN 0-323-02371-1.
Harmening	Clinical Hematology and Fundamental of Hemostasis, 4th Ed. F.A. Davis, 2002, ISBN 0-8036-0783-0
O'Toole	Encyclopedia and Dictionary of Medicine, Nursing, and Allied Health, 7th Ed. W.B. Saunders, 2003, ISBN 0-7216-9791-7
Garza	Phlebotomy Handbook, 6th Ed. Appleton-Lange, 2002, ISBN 0-13-092887-9
Kern/Blevins	Medical Mycology: A Self-Instructional Text, 2nd Ed., F.A. Davis, 1997, ISBN 0-8036-0036-4
Carr/Rodak	Clinical Hematology Atlas, W.B. Saunders, 1999, ISBN 0-7216-4174-1
Forbes/Sahm/Weissfeld	Bailey & Scott's Diagnostic Microbiology, 11th Ed., Mosby, 2002, ISBN ISBN 0-323-01678-2
Burtis/Ashwood	Fundamentals of Clinical Chemistry

5th Ed., Sanders, 2001, ISBN 0-7216-8634-6

Harmening	Modern Blood Banking and Transfusion Practices, 4th Ed., F.A. Davis, 1999, ISBN –0-8036-0419-X
Levanthal/Cheadle	Medical Parasitology: A Self-Instructional Text, 5th Ed., F.A. Davis, 2002, ISBN 0-8036-0788-1

Instrumentation in Clinical Laboratory Sections

Hematology/Urinalysis

2 Advia 120 Hematology Analyzers
2 Stago Compact Coagulation Analyzers
1 Atlas Urinalysis Analyzer
1 Clinitek 200+
Refrigerator
3 Centrifudges
1 Hematek Slide Stainer
Baths
1 Cytocentrifuge
3 Olympus Microscopes
1 AO Microscope
7 Sunquest Computer Terminals
1 PFA 100

Dispenser

Immunochemstry

Vitros 950
Freezing Bath
Vitros 250
Center/Cool Plate
AxSym
TDx Flx
Vitros Eci (2)
Blood Gas Analyzers: Gem Premier, IL 1735, IL 1710
Fiske Osmometer
BN100 (Behring Nephlometer)
Quantum II
Abbott Commander Incubator
Systems
IMx
Rotina 35 Centrifuge (2)
EBA 12 Centrifuge

Anatomic Pathology

2 Sakura Tissue Processors
Shandon Cytospin
Cytyc Thin Prep 2000
Large Specimen

Under-Counter Refrigerator
2 Lab-Line Tissue Float

2 Microm Microtomes
Tissue Tek cryostat
AO Microscope
Sartorius Balance
Magnifying Lamp
Shandon Electric Paraffin

Leica Coverslipper
Sakura Automated Stainer
Hettich Centrifuge
Shandon Low Temperature

Tissue Tek Embedding

3 Dictaphones
Microwave oven
Lipshaw Drying Oven
Hanson scale
Cryostat
Autopsy Table
Autopsy Scale
3 Helmet and Backpack

Overhead Hoist
Autopsy saw with vacuum

Beckman Electrophoresis System (2)
Helena SURE Spot Electrophoresis System
EDC (Helena Densitometer)

Systems- Point of Care

Testing
Blood Bank

4 microscopes
instrumentation
2 cell washers
Glucose Monitor
5 immufuges/centrifuges
1 platelet incubator/rotator
System
1 platelet rotator
Conductivivty Analyzer
1 blood storage freezer
Coagulation Analyzer -TEG
2 blood storage refrigerators
Analyzer
6 reagent refregerators
Recliner
1 biological cabinet/hood
1 ice machine
standing & Wall Mounted)
1 Translogic tube station
2 MTS centrifuges
1 MTS incubator
2 waterbaths

Hemochron ACT
Sure Step Pro Bedside
Centrifuges
Wescor Sweat Collection
Wescor Sweat
Thrombelastograph
Oxicom 02 Saturation
Phlebotomy Chairs &
Refrigerators
Baby Changers (Free

4 heat block incubators

Microbiology Instrumentation

DESCRIPTION	MANUFACTURER
Analyzer Computer Module	Vitek
Analyzer Filler Sealer	Vitek
Analyzer Incubator Reader	Vitek
Autoclave	Castle
Bacti Cinerator Iii (Total: 4)	Kendall
Bacti Cinerator Ii (Total: 1)	Scientific Products
Balance Xe - 310	Denver Instrument

Biogard Hood (Total: 2)	Baker Co., Inc
Blood Culture Analyzer I, Bactec	Becton Dickinson
Blood Culture Analyzer Ii, Bactec	Becton Dickinson
Computer And Printer, Bactec	Becton Dickinson
Colorimeter (Total: 3)	Vitek
Centrifuge: Dynac Ii (Total: 2)	Clay Adam/Becton Dickinson
Centrifuge: Varifuge 3.0r	Baxter (Heraeus)
Finnpipette 50ul	Labsystems
Finnpipette 200ul	Labsystems
Fluorescent Microscope	Leitz
Freezer (Total: 2)	Kenmore
Heat Block	Lab-Line
Heat Block	Baxter
Hood	Bioquest
Incubator Iii (37 Nonco2)	Precision Scientific
Incubator I (Room Temp)	Precision Scientific
Incubator Iv (42 Campy)	Precision Scientific
Incubator (Co2) Model 4200	Napco
Incubator (Co2) Model 5200	Napco
Microscope	American Optic
Microscope (Double Head)	American Optic
Microscope	Leitz
Microscope	Olympus
Mla Pipette 25ul	MLA Systems
Mla Pipette 50,100,200ul	MLA Systems
Refrigerator #1	True
Refrigerator #2	Beverage Air
Refrigerator Iii	Kenmore
Refrigerator (Chem Area Total: 2)	Beverage Air
Rotator	Fisher
Stereoscope	Fisher Scientific
Steri-Loop Incinerator (Total: 1)	Dade
Computer Terminals (Total: 7)	
Label Printer	

School of Medical Technology

Compact Desk Top Computer
Kodak Eckagraphic III Slide Projector
Elmo Overhead Projector
Compact Laptop Computer
Emerson TV/VCR

MEDICAL TECHNOLOGY COURSE DESCRIPTIONS

Clinical Hematology MT 405 (4 semester hours)

Presents an introduction to hematology with a special emphasis on cell identification, including normal and abnormal cells, maturation series of the cell lines and functions of the cells. A concentration on abnormal hematology with special and detailed emphasis on anemias, leukemias, and various hematological disorders occurs after basic concepts are presented. Correlation to the clinical laboratory with regard to instrumentation, histograms and case studies is included. The student is also introduced to the basic techniques and principles of special and routine hematology procedures in the clinical laboratory. Principals of instrumentation, quality assurance, problem solving, correlation of diagnosis with clinical findings, and computer application are emphasized in the clinical laboratory experience.

Hemostasis MT 410 (2 semester hours)

This course introduces the fundamental principles and concepts of hemostasis. It presents the principles of vascular hemostasis, a detailed study of platelets and their function, the factors involved with hemostasis and the fibrinolytic system, drug monitoring, laboratory testing, thrombolytic states and abnormal hemostasis. The clinical laboratory experience consists of routine and special assays in hemostasis. Principals of instrumentation, quality assurance, problem solving, correlation of diagnosis with clinical findings, and computer application are emphasized in the clinical laboratory experience.

Instrumentation and Methods MT 415 (2 semester hours)

Fundamental principles the theoretical aspects of laboratory methods and instrumentation. Laboratory mathematics, general laboratory techniques, quality control, reference values, relevance of laboratory procedures, evaluation of laboratory methods, automated analyzers, and automation of laboratory results are discussed. The clinical laboratory experience provides an opportunity to perform chemical analysis using a variety of instrumentation. Quality assurance, correlation of diagnosis with clinical findings, and problem solving are emphasized in the clinical experience.

Clinical Chemistry MT 420 (4 semester hours)

The theoretical principles of clinical chemical analysis will be introduced. Only those analytes which are most commonly assayed in the chemistry medical laboratory will be covered. Students will perform wet chemical analysis for analytes most commonly assayed in the medical laboratory. Principals of instrumentation, quality assurance, problem solving, correlation of diagnosis with clinical findings, and computer application are emphasized in the clinical laboratory experience.

Microbiology MT 425 (4 semester hours)

A study of the bacterial agents of human infections. Morphology and physiology of bacteria are discussed and related to pathogenesis in the human host. Lecture topics include epidemiology and infection control of bacterial infections, specimen collection and processing, and quality control in the bacteriology laboratory. Techniques will be performed in the isolation, identification, and susceptibility testing of microorganisms commonly encountered in the clinical laboratory.

Parasitology, Mycology, and Virology MT 430 (3 semester hours)

A study of clinically significant parasites, viruses, and fungi. Topics covered include taxonomy, life cycles, morphology, and pathogenicity. Techniques of specimen collection and processing as well as methods used for the identification of parasites, fungi, and viruses are discussed and performed in the clinical laboratory.

Microscopy MT 440 (2 semester hours)

This course involves a detailed study of the chemical and physical characteristics of body fluids. Cellular elements are studied. Characteristics of body fluids are correlated to normal and disease states. The laboratory experience includes routine urinalysis and various miscellaneous assays. Principals of instrumentation, quality assurance, problem solving, correlation of diagnosis with clinical findings, and computer application are emphasized in the clinical laboratory experience.

Immunohematology MT 450 (4 semester hours)

The theory and practice of standard procedures involved in collection, processing and pretransfusion testing of blood components will be presented. The principles and methods needed for clinical application will be emphasized. Practical experience in the Blood Bank is correlated with fundamental immunohematology theory. Problem solving, quality assurance, and correlation of diagnosis with clinical findings is emphasized in the clinical experience.

Immunology MT 455 (3 semester hours)

This course encompasses the human immune system including cells and related tissues. Principles of antigen/antibody reaction are stressed and applied in a clinical laboratory setting. Diagnostic tests used to establish a patient's immune status or deficiency are discussed. The course material and laboratory skills taught in Immunology will allow the student to understand the diagnosis of immune disorders. Principals of instrumentation, quality assurance, problem solving, and computer

application are emphasized in the clinical laboratory experience.

Medical Laboratory Systems MT 460 (2 semester hours)

This course includes an introduction into the clinical laboratory, education methodologies, principles of management, and principles of phlebotomy and specimen handling. Introduction into the laboratory covers medical terminology, safety and government regulations, policies of the school, laboratory and hospital, infection control, introduction to the computer system and quality assurance. Principles of ethics, communication and team building as well as educational methodologies are covered topics in MT 460. The management portion of MT 460 considers the basic principles of supervision, personnel relations, financial management and the general operation of a clinical laboratory as well as research design and practice used to evaluate published studies. Laboratory operations topics will include clinical decision making and critical pathways, performance improvement, performance evaluation, utilization of personnel and staffing patterns. The phlebotomy portion of MT 460 consists of an introduction into phlebotomy and sample handling and collection. Clinical laboratory experience includes routine venipunctures, skin punctures, bleeding times, and computer applications.