

**Proposed Program**

**Associate in Applied  
Science**

**in**

**Radiography**

**Department of Health Professions**

**Bitonte College of Health and Human Services**

## **YSU Radiography Program Rationale and Notes**

This program in Radiography is designed to prepare students for work in the field of Radiologic Technology. The program will prepare students to pass the American Registry of Radiologic Technologists (ARRT) board certification exam, the nationally recognized gateway into the radiography field. The program is competency-based, meaning that students will demonstrate clinical competency in a wide array of radiologic procedures as a requirement for graduation.

### **Program Structure**

The program is organized from simple to complex, and includes integrated clinical experiences throughout the five semester sequence. The program course sequence is also designed to deliver students ready to take the national ARRT board exam at the end of the sequence. Laboratories are used to enhance hands-on learning of radiographic procedures as well as to illuminate difficult imaging concepts. Clinical experiences allow the student the opportunity to put learned skills into practice. The vast majority of routine radiographic exams will require clinical competency exams, where the student demonstrates the procedure in the clinical on actual patients.

All courses which have a clinical component will require evaluations of the student by the clinical instructor. The student must pass the clinical component in order to pass the course and continue in the Radiography sequence.

### **Clinical Experience**

The program is very intensive due to the high number of clinical experience hours. In this program, students will complete between 1350-1450 hours of clinical experience, based on five clinical semesters, and utilizing an especially clinical-intensive summer semester between the two years. While this amount of clinical experience time may seem high, radiography programs nationwide average between 1600-1800 clinical experience hours. During the first two semesters of the program, students attend clinicals two eight-hour days a week, with classes on campus on the alternate days. In the summer semester, students attend clinicals four and one half days per week, with a class at the university one afternoon per week. During the last two semesters of the program, students attend clinicals three days per week, with classes on two of the free days. By utilizing alternate clinical days for first and second year students, clinical seats in the clinical affiliates can be maximized.

Typically, the Clinical Instructor in the clinical affiliate is a full-time employee of the hospital, who has a significant amount of their workload dedicated to managing and directing the students assigned to the clinical affiliate. The numbers of students in any one clinical site is determined by the number of technologists in the clinical affiliate, the availability of equipment, and patient workload.

Students are evaluated in the clinical by the clinical instructor, and this grade should feed into the overall grade for the course with which the clinical experience is associated.

Courses, which include clinical experiences, vary slightly as to the ratio of clinical hours to credit hours. In the first two semesters, the ratio is 16 clinical hours per credit hour. In the summer and during the second year, the ratio is 12 clinical hours per credit

hour. This averages approximately 14 clinical hours per credit hour. This is in keeping with the Ohio Board of Regents (OBOR) guideline for Directed Practice, into which these experiences best fit with the OBOR definitions.

### **Program Faculty**

The program will require a full-time faculty with administrative release time to serve as Program Director. Although the JRCERT requires that a program official is employed whenever students are in clinical, the Program Director can be on a nine-month academic contract with an ancillary summer contract. A second full-time faculty member is necessary to serve as a Clinical Coordinator to manage the clinical affiliates and clinical experiences of students. The Clinical Coordinator will also teach courses in the program. It is necessary that the clinical coordinator receive release time to coordinate the clinical experiences.

### **Resources**

The ideal program has a dedicated, energized laboratory (an x-ray room with an adjacent space). This facility is used for laboratories in the radiographic procedures courses, as well as several other courses where experiments can be used to enhance student understanding of imaging concepts. A new x-ray room equipped with computed (digital) radiography equipment would cost roughly \$120,000 or slightly more, after costs to prepare the room (lead shielding). Used equipment may present a slightly less expensive alternative. It is possible to have the laboratories performed at the clinical site, but very few radiology departments can afford to give up a room for laboratory use on a regular basis, and this situation is less than ideal unless the clinical affiliate can commit to releasing a room for this use. Preliminary discussions with Humility of Mary have identified difficulty in scheduling logistics to accomplish the onsite clinical laboratory. However, Humility of Mary has agreed to serve as the primary clinical site for the radiography program.

The RADGR 1501 Laboratory is essentially a laboratory course in patient care techniques which ideally would be able to utilize the existing medical assisting or paramedic laboratory, although additional equipment for the radiography laboratory could also fulfill this purpose. These skills could also be completed in the clinical environment, although this would require more dedicated time from a clinical instructor.

### **Compliance with Appropriate Educational Standards**

This proposed program includes all the elements of general education required by YSU. The program is designed to comply with the Professional Curriculum for Radiography of the American Society of Radiologic Technologists (ASRT). The program covers all of the content areas of the American Registry of Radiologic Technologists (ARRT) national board certification exam, and includes additional material designed to introduce the student to specialty areas such as CT, MRI, Mammography and Interventional Radiology. This program curriculum will comply with the requirements of the Joint Review Committee on Education in Radiologic Technology (JRCERT), the sole program-specific accrediting body for radiography. Interested parties may want to review these various standards by accessing the ASRT at [www.asrt.org](http://www.asrt.org), the ARRT at [www.arrt.org](http://www.arrt.org) and the JRCERT at [www.jrcert.org](http://www.jrcert.org).

- A. The program title is Radiography. The proposed program is a new Associate of Applied Science (AAS) degree program in Radiography. No current radiography program or courses exist in the current course inventory.
- B. Nationally, the health care industry continues to increase at a rate that exceeds most typical industries, especially as the population grows and ages. The need for diagnostic imaging services performed by radiology technologists reflects this rate of increase in the traditional hospital setting, but more so in the growing outpatient care centers. Employment growth for radiology technologists is also expected in physician offices, medical and diagnostic laboratories, and other health care centers. According to the U.S. Department of Labor, Bureau of Labor Statistics radiology technologist/technician employment growth is expected to increase by 18 to 26%. This is primarily attributed to the aging population. ([www.bls.gov](http://www.bls.gov)).

Employment growth is expected to increase by 26.8% by 2012 for radiology technologist/technicians in Northeast Ohio ([www.ohioworkforceinformer.org](http://www.ohioworkforceinformer.org)). Local health care institutions, such as Humility of Mary Health Partners have expressed a dire need for more licensed radiology technologists.

- C. Implementation of the Radiography program addresses Critical Issue 2: Programs/Teaching, Learning and Research, Goal 2-1 of the YSU Strategic Plan.

The mission of the Department of Health Professions is to provide certificate, associate, baccalaureate, and master's degree programs aimed at fostering excellence in the preparation of health-care professionals while promoting a climate of respect for the diversity of individuals encountered in health-care settings.

The Department of Health Professions currently is comprised of a conglomeration of fourteen dynamic certificate and associate, baccalaureate, and master degree programs and a cadre of full- and part-time faculty with significant insight and sensitivity to the changing health care, health promotion, and public health needs of the communities of interest. The Department continues to provide credible health care, health promotion, and public health programs at the certificate, and associate, baccalaureate, and master degree level. Currently, three programs are offered at the certificate level, five programs at the associate degree level, five at the baccalaureate degree level, and one at the graduate level.

It is the intent of the Department to foster "lifelong learning" by offering educational opportunities to students which allow direct articulation between programs from the certificate to the associate degree, from the associate degree to

the baccalaureate degree, and from the baccalaureate degree to the master's degree. The transition between levels is made as seamless as possible for all students. The proposed Radiography program will adhere to this philosophy and will articulate seamlessly with the BSAS in Allied Health with no loss of credit between degrees. Radiography graduates will have the opportunity to continue to pursue their goals of a more advanced education will employed in and gaining valuable clinical experience.

D. Provided the necessary approvals are secured through the University and the Ohio Board of Regents, the first class is expected to be accepted Fall 2008.

<b>2-1.11 Develop Radiology Technician program</b>	
<b>Action Plan</b>	
<b>Timeframe</b>	<b>Tasks</b>
2006-2007	Determine feasibility for Radiology Technician Program. <ul style="list-style-type: none"> <li>• Conduct workforce needs assessment</li> <li>• Conduct resource needs assessment (i.e. hospital and clinical sites support)</li> <li>• Development preliminary curriculum</li> <li>• Develop program cost projection</li> </ul>
2007-2008	Curriculum development and approval <ul style="list-style-type: none"> <li>• Develop preliminary curriculum</li> <li>• Submit program and courses for approval by Academic Senate and Board of Trustees</li> </ul>
2008-2009	Implementation <ul style="list-style-type: none"> <li>• Hire program director and clinical coordinator.</li> <li>• Build and equip lab facility.</li> <li>• Seek program accreditation.</li> </ul> Accept first class of students.
2009-2010	Begin Radiology Technician Program <ul style="list-style-type: none"> <li>• Begin courses</li> </ul>
Spring 2011	Graduate first class of Radiology Technicians

E. The Radiography program will be administered through the Department of Health Professions. Currently, the Department of Health Professions has fourteen various certificate and associate, baccalaureate, and master degree programs in health care, public health, and health education.

F. The two-year program in radiography leads to an Associate in Applied Science degree. This program requires five semester of study including one summer semester. The program is designed to prepare the radiology technologist to work in the hospital, physician office, medical or diagnostic laboratory, outpatient care center, or other health care facility setting. The field of radiography continues to expand based on the continuing development of new technology and techniques.

At the conclusion of the second year in the program, the student is eligible to take the American Registry of Radiologic Technologist (ARRT) board examination. The AART is the nationally recognized credential in the radiography field and is necessary to be certified as a radiologic technologist practicing radiography. The Ohio Department of Health X-ray Control Program provides licensure to radiographers to practice in the state of Ohio.

Radiologic Technologists, also commonly referred to as radiographers, are part of the health care team that provides diagnostic services. They prepare X-ray films of all aspects of the body that contribute to the diagnosis of medical problems. They are responsible for patient care positioning, adjusting equipment settings, analyzing the quality of X-rays, and protecting the patient from unnecessary and excessive radiation exposure. The Radiography program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

The Radiography program has restricted admission and enrollment. Students are admitted to the program only once per year. The admission policy is available in the Department of Health Professions. Students accepted into the program must complete BIOL 1545 prior to fall semester once accepted into the program.

(See attached curriculum requirements)

- G. The Bitonte College of Health and Human Services has a total of 990 combined undetermined and “pre” health care majors (Fall Semester 2006). Of the 990 majors, 207 are listed as undetermined HHS; whereas, 783 students are listed as “pre” majors in specific health care areas, such as pre-Respiratory Care and pre-Nursing. Based on restricted program admission and enrollment capacities, approximately 340 students of the 990 will be accepted into programs over a two year period. This leaves approximately 650 students, the majority of whom seek majors in other health care programs within BCHHS or other institutions in the region.

University Admissions, the Bitonte College of Health and Human Services Dean’s Office, and the Department of Health Professions continuously receives calls from prospective students who are interested in applying to a Radiology Technology program. Specifically, the Department of Health Professions receives approximately 15 to 20 such calls per week and has done so over the last several years.

- H. A review of accredited Radiology Technology/Technician programs in Ohio revealed only one program at the Salem Campus of Kent State that is within fifty miles of Youngstown State University.
- I. Implementation and maintenance of the Radiography program will require two new full-time faculty. One will serve as the program director and the other as the director of clinical education as required for accreditation. Combined, they will

also be responsible for teaching 67% of the program workload. Part-time faculty will be hired to teach the remaining 33% of the program workload.

A dedicated classroom and equipped laboratory will be required, in addition two faculty offices. Space within Cushwa will be made available for the program. Clinical experiences will be conducted in affiliated health care institutions, laboratories, and outpatient care centers within the region. This parallels clinical arrangements for other existing health care programs in the Department of Health Professions. Clinical sites require reimbursement for student supervision.

Student advising will be done by the two full-time Radiography faculty. All other support services currently exist.

J. Estimated total program costs:

<b>Category of Cost</b>	<b>Description</b>	<b>Start-up Cost</b>	<b>Recurring Cost</b>
<i><b>Full-time Faculty</b></i>	2 faculty positions, salary and fringes		\$130,340
<i><b>Part-time Faculty</b></i>	19 WLH @ \$800/WLH and fringes		\$ 18,240
<i><b>Facilities</b></i>	Start-up cost to renovate and equip radiography laboratory and classroom and equip faculty offices	\$155,000	
<i><b>Supplies</b></i>	Teaching and disposable laboratory supplies and equipment maintenance		\$ 19,000
<i><b>Other Operating Costs</b></i>	Phone, postage, clinical supervision and professional travel		\$ 6,600
<i><b>Accreditation</b></i>	Initial accreditation fees	\$ 5,750	
<i><b>Accreditation</b></i>	Annual fees		\$ 3,200
<i><b>Clinical Reimbursement</b></i>	Student supervision in clinical affiliates		\$ 55,000
<i><b>Total</b></i>		<b>\$160,750</b>	<b>\$232,380</b>

K. There will be no impact on any program minors.

**Youngstown State University  
Associate of Applied Science in Radiography  
Bitonte College of Health and Human Services  
Department of Health Professions**

Students who graduate from the Radiography program at YSU will be eligible to take the national registry examination administered by the ARRT. Graduates will have learned the skills necessary to be employed in a diagnostic radiology center. Graduates of this program are also prepared for continuing specialized education in other areas of diagnostic imaging.

**PREREQUISITE SUMMER SEMESTER**

		<b>Semester Hours</b>
BIOL 1545	Human Anatomy and Physiology for Allied Health Majors	<u>5</u> <b>5 sh</b>

**FIRST YEAR**

**First Semester (Fall)**

RADGR 1501	Introduction to Radiography	4
RADGR 1501L	Introduction to Radiography Lab	1
RADGR 1505/1505L	Radiographic Procedures I	4
MATH 1504	Intermediate Algebra with Trigonometry	<u>5</u>
		<b>14 sh</b>

**Second Semester (Spring)**

RADGR 1511	Radiographic Technique	4
RADGR 1512	Radiographic Physics	4
RADGR 1515/1515L	Radiographic Procedures II	4
ENGL 1550	Writing I	<u>3</u>
		<b>15 sh</b>

**Third Semester (Summer)**

RADGR 2600	Advanced Radiographic Procedures and Modalities	4
HSC 1568	Healthy Lifestyles	<u>3</u>
		<b>7 sh</b>

**SECOND YEAR**

**Fourth Semester (Fall)**

RADGR 2601	Radiographic Image Critique	2
RADGR 2602	Radiographic Pathology	2
RADGR 2605/2605L	Radiographic Imaging Science	5
ENGL 1551	Writing II	3
PSYCH 1560	General Psychology	<u>3</u>
		<b>15 sh</b>

**Fifth Semester (Spring)**

RADGR 2611	Radiobiology and Protection	3
RADGR 2615	Advanced Topics in Radiography	4
COMST 1545	Communication Foundations	3
SOCIO 1500	Introduction to Sociology	3
ELECTIVE	Arts and Literary Perspective	<u>3</u>
		<b>16 sh</b>

<b>Total Program Hours</b>	<b>72 sh</b>
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**Associate of Applied Science in Radiography  
Proposed Program**

**TC = Technical Course Semester Hours**

**NT GER = Non-technical Course General Education Requirement Semester Hours**

**NT Basic = Non-technical Course Basic Semester Hours**

Course	Course Title	TC	NT GER	NT Basic
BIOL 1545	Human Anatomy and Physiology for Allied Health Majors			5
RADGR 1501	Introduction to Radiography	4		
RADGR 1501L	Introduction to Radiography Lab	1		
RADGR 1505/1505L	Radiographic Procedures I	4		
MATH 1504	Intermediate Algebra with Trigonometry			5
RADGR 1511	Radiographic Technique	4		
RADGR 1512	Radiographic Physics	4		
RADGR 1515/1515L	Radiographic Procedures II	4		
ENGL 1550	Writing I		3	
RADGR 2600	Advanced Radiographic Procedures and Modalities	4		
HSC 1568	Healthy Lifestyles			3
RADGR 2601	Radiographic Image Critique	2		
RADGR 2602	Radiographic Pathology	2		
RADGR 2605/2605L	Radiographic Imaging Science	5		
ENGL 1551	Writing II		3	
PSYCH 1560	General Psychology		3	
RADGR 2611	Radiobiology and Protection	3		
RADGR 2615	Advanced Topics in Radiography	4		
COMST 1545	Communication Foundations		3	
SOCIO 1500	Introduction to Sociology		3	
ELECTIVE	Arts and Literary Perspective		3	
	<b>Total Hours</b>	<b>41</b>	<b>18</b>	<b>13</b>