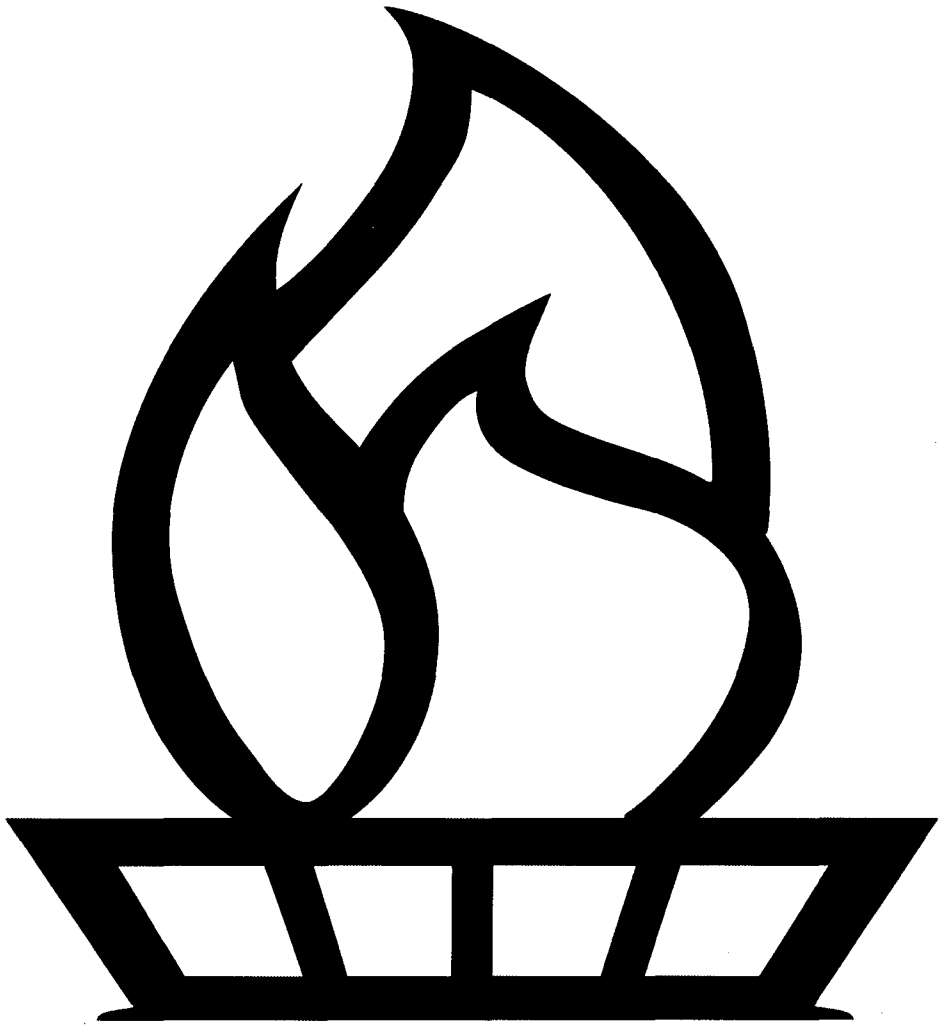
Diagnostic Medical Sonography

APRC 2006-2007

Section 1 of 2

Diagnostic Medical Sonography Program
College of Allied Health Sciences
Ferris State University

Academic Program Review Report



Program Review Panel

Michelle Weemaes, Diagnostic Medical Sonography Program Coordinator & PRP Chair
Theresa Raglin, Department Head Dental Hygiene and Medical Imaging
Sonya Knoll, Diagnostic Medical Sonography Clinical Coordinator
Paul Jackson, Associate Professor, College of Business
Renee Wood, RDMS, Adjunct Clinical Instructor

Answers for the Academic Program Review Council

1. Discuss the status of the programs accreditation. The DMS program did not become eligible for initial application to the JRC-DMS for specialized accreditation until fall semester of 2005. Prior to that date, the program was not staffed appropriately and was ineligible for accreditation. A program revision was completed to align the curriculum with the JRS-DMS standards during the 2005-06 academic year. During the same year, the academic program review process was completed that provided the assessment data necessary to support the accreditation process. The initial self-study application will be completed during the fall 2006 semester. A medical director must be identified and secured for the program prior to the initial application. The Department Head, Program Coordinator and Clinical Coordinator are recruiting individuals to fill this position.

2. Discuss the advisory board's composition and role. Does it meet annually? How are its insights and judgments reflected in the curriculum? The advisory board members consist of the adjunct clinical instructors (ACI'S) in the DMS program. During the 2005-2006 academic year, a student representative seat was added to the advisory board membership. The advisory board meets annually. The spring 2006 advisory board meeting was cancelled due to a low response rate for attendees. The program scheduled meetings on a variety of days and times including Fridays, evenings and weekends to accommodate the work schedule of the advisory board members. Previous advisory board recommendations have created the following changes in the DMS curriculum:

- ☐ Implementing more gynecological scanning on campus.
- ☐ Implementing more "protocol scanning" on campus.
- ☐ Implementing venous Doppler into the curriculum.
- ☐ Implementing an introduction to carotid Doppler into the curriculum.

The most frequent suggestion from the advisory board is to add a post associate degree vascular certificate. The DMS faculty consults with the advisory board regarding current curriculum and community needs. The majority of our hospital affiliates that employ the adjunct clinical instructors also employ our graduates. The program ensures the professional community sonography graduates with the appropriate clinical skills.

3. Discuss the program adjuncts' concerns about utilization of the advisory board and lack of "communication with communities of interest." The DMS program schedules an ACI meeting every fall and an advisory board meeting every spring. These meeting are not always well attended. The members are sonographers that work and live through out the state of Michigan. The program has offered the professional community free continuing education opportunities and physics review sessions. These sessions were requested by the ACI's. However when held, the program received no participation from the adjunct faculty. The DMS faculty visit each ACI and hospital twice a semester during a student interns three semester rotation. Communication with our ACI's is very good. The most common reason that ACI's do not attend campus events is the lack of release time from their facilities. Many of the hospitals employ only one or two ACI's and those technologists are on call most evenings and weekends.

Frustration from the ACI's regarding accreditation and the vascular certificate is common. As faculty, we too are frustrated at our lack of accreditation. Once fully staffed with a medical director, the accreditation self-study will be sent to the JRC-DMS. There seems to be disconnect between how ACI's think changes should happen and how the academic process occurs. One example is the program curriculum revision that was recommended by the ACI's and advisory board. The advisory board made recommendations to the DMS program in the spring of 2005. The program revision was completed late fall semester and approved spring of 2006. The implementation date for the new curriculum is fall of 2007. Some ACI's are frustrated at what they perceive as a lack of movement by the university when in actuality it is a normal timeline.

4. Discuss the programs graduates' view that they want more data analysis skills" than they receive from the program. An outcome of this program review process was the identification of content improvement in the curriculum. After assessing our terminal goal of critical thinking, the program revamped the delivery of the curriculum. Prior to the 2005-2006 academic year, the curriculum was delivered via lecture in the classroom and skills practice in the lab. After completion of the program assessment, a new teaching model was incorporated.

- ☐ Students outline their chapter before lecture each day. Students are responsible to learn basic information on their own. This approach allows instructors to spend less time lecturing and more time employing cooperative learning using data analysis skills.
- ☐ During each lecture period, students practice applying the information learned thus far in the program using critical thinking skills.
- ☐ Every course is comprehensive so that critical thinking and data analysis can be applied sequentially.
- ☐ Quizzes are short answer and essay using questions that will require the student to apply the material learned.

5. Discuss the program's difficulties in finding clinical placement sites. Clinical placements are difficult to find and secure in the ultrasound field. It is not conducive to place more than one DMS student at a site unless the site has a very large department or student interns work opposing shifts. A site must have an appropriately credentialed staff member to oversee students and provide a minimum patient load in Ob GYN and abdomen procedures. The problems encountered most often with clinical placements are:

- ☐ The staff has one credential but not both ARDMS credentials (credentialing is not mandatory in Michigan and approximately 50% of all technologists in the state are unregistered).
- ☐ The site does not produce the volume of studies required by the JRC-DMS.
- ☐ The site provides internship experience to students from another college or program.

During the assessment process, alternative ideas have emerged about clinical placements. The previous dean of the CAHS did not support out of state travel to clinical affiliates but the interim dean is supportive of this concept. The program is seeking out of state clinical placements now that WebCt is a communication tool available for the ACI's. The DMS program is piloting WebCt as a communication tool for the ACI's during the fall 2006 semester in SONO 291. The program is hopeful that this will increase not only the communication with the clinical sites but enhance the ability to secure future sites.

6. Discuss the significance of the programs enrollment trends- enrollment has dropped every year since 2002-2003. What is the current enrollment? The enrollment for the professional sequence courses was capped at 24 students in 2002-2003 and was subsequently dropped to 20 students during the fall of 2003. The decision for that drop was two fold. First, the program did not have clinical placement sites for 24 students and some students were deferring internship for a year. Secondly, the program hired a JRC-DMS site reviewer and consultant to evaluate the program for self-study readiness. To assure quality outcomes for the program, the consultant recommended that the DMS program accept only twenty students per year. The DMS program has maintained a full quota of students each fall.

enrollment is not dropping hidden by Banner

The overall enrollment of the pre-DMS majors is difficult to quantify. A mechanism to track pre-DMS majors is currently not available in either SIS or native banner. The DMS program has a waitlist that is full for the years 2007-2008 and 2008-2009. Nine students are also on the 2009-2010 quota list. The SAA office, as well as program advisors, has encouraged pre-professional students on the waitlist to enroll in a dual degree or bachelor of science degree. The graduating class of 2006 had 6 dual degree majors. The current class, fall 2006, has 9 dual major students. The university numbers do not reflect these students as DMS students but rather count them in their bachelor degree program. The numbers in the DMS program appear to be decreasing due to our effectiveness of promoting the dual degree programs to the professional students.

M most pgms. in Sono. are not accredited

7. Discuss the opportunities for diversity in recruiting for the program. The sonography field does trend toward female technologists. The Ferris DMS program does not discourage men from the sonography field; however, men will have some disadvantages in hiring. The DMS program recruits all students through on campus recruitment days and high school open lab days. With the loss of the CAHS recruiter, the recruitment in the high schools is now less common.

women need to be present with male sonographers

In the fall 2006 professional sequence class, the DMS program has three minority students and two male students. One program recruiting tool in the spring of 2006 sponsored the faculty to attend and host an informational booth at the Michigan Sonographers' Society Symposium in Pontiac Michigan. Recruiting in the Detroit area may prove to be an effective tool in increasing our student diversity. It is difficult to quantify these efforts because of our three year waitlist. Students recruited today will not start their professional sequence program for three years.

Open hs days

8. Discuss the number of hours required for the program (80) relative to the 60-64 hour limit normally required for associate degrees. The outcomes and requirements of an accredited DMS program are very prescriptive. Eighty credits are required in the degree in order to meet the JRC-DMS standards, university general education requirements and the College of Allied Health core curriculum requirements.

A credit comparison of other sonography programs in the state is listed below:

Program	# Of Credits	How many students per year
Jackson Community College	*75 credits	20
Lansing Community College	*69 credits	20
Delta College	85/91 credits	14
Baker	112 quarter hours	15
GVSU	4 year program	4 students currently enrolled
Oakland and Henry Ford information not available on-line		

* Only 1 English course require for graduation

Due to the JRC-DMS prescriptive requirement of four pre-requisite courses and the stringent didactic requirements, all Michigan DMS programs are above 60 credits. Many Michigan programs include very few general education credits. All credits are necessary JRC-DMS or FSU requirements for the program. The only difference noted between the FSU DMS model compared to other DMS programs across the state is the addition of English 250 and the College of Allied Health core curriculum requirements. These credits increase the degree requirements by eight credits.

An example of a recent job posting through Henry Ford College is attached in Appendix A. The posting is for an entry level sonographer with a minimum of a three year program degree. A three year program is the industry standard for sonography.

9. Discuss the reason coursework is required during the summer. The DMS program is designed in a very sequential order as students increase their cognitive abilities and advance their skills. Students learn how to safely and effectively use the equipment during the first semester. Students progress to scanning abdominal organs in the second semester labs. During the third semester, students advance their skills and scan gynecological exams. It would be a violation of the FDA recommendations for "dwell time" a patient/student is exposed to ultrasound waves if the abdominal and gynecological scanning labs were taught during the same semester.

The course material and content is also very time consuming and difficult. To combine the first year didactic work into two semesters would be very detrimental to the students' academic progress. As a result of this program review and aligning our curriculum to JRC-DMS standards, the program has moved some of the current material in SONO 110 and SONO 120 and created new WebCt courses to be taught during the internship year. This curriculum change allowed more effective delivery of the material and improved the pacing of classes that were too compacted. The clinical hours for the second year of the program are also mandated by the JRC-DMS board. In order for the program to satisfy the required hours set forth, DMS students must attend internship for three semesters.

10. Where do program graduates currently practice? How does the program keep in touch with them? DMS graduates are given a post graduation survey six months after graduation. This survey can be found in Appendix B. During the spring of 2006, every DMS graduate was telephoned and invited to the Alumni Return Day CME lecture series sponsored by CAHS. During these conversations graduates were asked the following: were they working in the profession, where were they working, and if they had taken and successfully passed any registry exams. These results were compiled for program review statistics. Graduates have also been invited to alumni return days and spring physics review sessions annually.

DMS graduates practice ultrasound around the country including New York, Hawaii and North Carolina. All graduates working in the sonography field report working in either a hospital or a clinic. As a young program, graduates are not practicing as research sonographers, application specialists, or department managers. As the graduates gain experience, these trends will likely change.

80% of grads get jobs in MI last year

APPENDIX A

HireDiversity.com
POWERING THE NEW MAJORITY

Home | Post Resumes | My HireDiversity | Career Tools | Support

Advanced Search | Search By Company | Saved Searches | Job Agents | My Applications

Henry Ford Health System

Ultrasound Tech

Job Information

Posted:	Tuesday, August 22, 2006
Modified:	Tuesday, September 19, 2006
Division:	HFWCHS - Ultrasound
Location:	Brownstown Michigan
Job ID:	95380 (Henry Ford Health System Job ID)
HireDiversity Job ID:	1570590

APPLY FOR THIS JOB

Job Text

Job Description

ID: 95380

Job Title: Ultrasound Tech

Department: HFWCHS - Ultrasound

Type: Contingent

Shift: Rotating

Location: HFWH Ctr. for Hlth. Svcs. - Brownstown

City: Brownstown

State: MI

Country: US

Position Description:

To perform a variety of technical radiologic procedures applying prescribed high frequency sound for diagnostic purposes as ordered by physician, following standard operating procedures and departmental guidelines. 3 year college or technical school degree in Ultrasound Technology is required. Registered as a Diagnostic Medical Sonographer is required. HD2006

APPENDIX B

GRADUATE SURVEY

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

JRC-DMS Accredited Program #_____

The primary goal of a Diagnostic Medical Sonography Education program is to prepare the graduate to function as a competent sonographer. This survey is designed to help the program faculty determine the strengths and areas for improvement for our program. All data will be kept confidential and will be used for program evaluation purposes only.

BACKGROUND INFORMATION:
Name of Graduate: _____
Length of employment at time of evaluation: _____ years and _____ months.
Name (if different from that on the cover): _____
What specialty education did you complete: ☐ general ☐ vascular ☐ cardiac
Credential Status (*check all that apply*): ☐ RDMS (☐ Abdomen ☐ Obstetrics)
☐ Other_____ ☐ RDCS ☐ RVT

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. KNOWLEDGE BASE (Cognitive Domain)

THE PROGRAM:

A. Helped me acquire the sonography care knowledge necessary to function in a healthcare setting.

B. Helped me acquire the general medical knowledge base necessary to function in a healthcare setting.

C. Prepared me to collect data from charts and patients.

D. Prepared me to interpret patient data.

E. Prepared me to evaluate diagnostic findings in order to perform

appropriate diagnostic procedures. 5 4 3
2 1 N/A

F. Trained me to use sound judgment while functioning in a healthcare setting.

Comments: _____

_____

_____

_____

_____

_____

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree
N/A = Not Applicable

II. CLINICAL PROFICIENCY (Psychomotor Domain)

THE PROGRAM:

F. Prepared me to perform a broad range of sonography examinations in the following specialty in which I trained
(circle only those that apply).

General 5 4 3
2 1 N/A

Cardiac 5 4 3
2 1 N/A

Vascular 5 4 3
2 1 N/A

H. Prepared me with the skills to perform patient assessment. 5 4 3 2 1 N/A

I. Prepared me to perform up-to-date sonography procedures. 5 4 3 2 1

J. Prepared me to perform and interpret diagnostic procedures 5 4 3 2 1

Comments: _____

_____

III. BEHAVIORAL SKILLS (Affective Domain)

THE PROGRAM:

K.	Prepared me to communicate effectively within a healthcare setting.	5	4	3	2	1
L.	Prepared me to conduct myself in an ethical and professional manner.	5	4	3	2	1
M.	Prepared me to manage my time efficiently while functioning in a healthcare setting.	5	4	3	2	1

Comments:

IV. GENERAL INFORMATION *(Check yes or no)*

A.	I have actively pursued attaining my sonography credentials.	☐ YES
B.	I am a member of a state/local sonography professional association.	☐ YES
C.	I am a member of a national sonography professional association.	☐ YES
D.	I actively participate in continuing education activities.	☐ YES

Comments:

V. OVERALL RATING of the program:

Please rate and comment on the **OVERALL** quality of your preparation as an **ENTRY-LEVEL** sonographer:

5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor

Comments:

VI. ADDITIONAL COMMENTS

Based on your work experience, please identify two or three strengths of the program.

Based on your work experience, please make two or three suggestions to further strengthen the program.

What qualities/skills (if any) were expected of you upon employment, that were not included in the program?

Please provide comments and suggestions that would help to better prepare future graduates.

Thank You!

Date: _____

5/2001

Academic Program Review Council
Questions for the DMS Program
6 pm, Thursday, September 21, 2006—ASC 2082

1. Discuss the status of the program's accreditation efforts.

2. Discuss the advisory board's composition and role. Does it meet annually? How are its insights and judgments reflected in the curriculum?

3. Discuss the program adjuncts' concerns about utilization of the advisory board and lack of "communication with communities of interest."

4. Discuss the program graduates' view that they want more "data analysis skills" than they received from the program.

5. Discuss the program's difficulties in finding clinical practice sites.

6. Discuss the significance of the program's enrollment trends—enrollment has dropped every year since 02-03. What is the current enrollment?

7. Discuss the opportunities for diversity in recruiting for the program.

8. Discuss the number of hours required for the program (80) relative to the 60-64 hour limit normally required for associate degrees.

9. Discuss the reason coursework is required during the summer.

10. Where do program graduates currently practice? How does the program keep in touch with them?

FERRIS STATE UNIVERSITY

TO: Members of the Program Review committee

FROM: Ellen Haneline, Interim Dean

RE: Diagnostic Medical Sonography Program

DATE: August 16, 2006

The Diagnostic Medical Sonography (DMS) Program at Ferris is one of 12 programs offered in the state of Michigan. It and the program at Grand Valley State University are the only programs offered at a university level. The Ferris program is unique in that it is the only program in the state that provides students with an entire year of on-campus didactic and laboratory experience prior to their assignment in the clinical setting.

There is a high demand for the program. Enrollment for the 2006-2007 academic year is at the program's quota of 20 students. There is a two-year waiting list for entry into the program. Demand for graduates is flat in the state. Surveys performed by the Regional Skills Alliance indicate that there will be very few openings within the next 3-5 years. However, outside of the state, demand for sonographers is expected to increase at a rate faster than the average for all occupations (37%) through 2014. Growth is expected due to the increased demand for sonography as an alternative to radiologic procedures (Bureau of Labor Statistics. 2005).

Of major concern is the lack of programmatic accreditation. Prior to the 2005-2006 academic year, the program was unable to apply for accreditation. However, with the addition of the second faculty member, the program met the requirement of having both a program director and clinical coordinator. It is expected that application will occur prior to the end of the Fall, 2006 semester. Lack of programmatic accreditation prohibits the students from taking the certification examination from the ARDMS, (the most widely accepted credential for sonographers) until they have obtained one year of scanning experience. An additional concern lies in the difficulty in finding clinical practice sites. Currently, there is a great deal of competition between the sonography programs within the state for clinical sites. Other programs are located within metropolitan areas with large numbers of health care facilities who are affiliated with the local program. Other hospitals do not want to affiliate with a program that is not accredited.

Current resources are adequate to meet the demands of the present curriculum. There is sufficient supply and expense funding allocated for program needs. Faculty are able to apply for continuing education funding through the dean's faculty enrichment fund and funding available to all other faculty on campus through the TIMME grant. Current equipment is adequate to meet program needs. However, as the profession grows and

COLLEGE OF ALLIED HEALTH SCIENCES
200 Ferris Drive, Big Rapids, MI 49307-2740
Phone 231 591-2270 or 1 800 462-8553

incorporates new technologies, it will be important that equipment be obtained. Equipment is obtained through vocational educational funding, funding through the university and through contacts with hospitals that provide a source of donated equipment. The current laboratory is minimally adequate for student practice. Plans have been submitted for renovation of another space within the building. The renovated space will allow space adequate for the current number of scanners plus room for growth should it become necessary.

Relationship to mission: The DMS program fits the Ferris State University Mission to become a leader providing opportunities for innovative teaching and learning in a career-oriented, technological and professional education. It is a career oriented program that provides students with a professional education that is technical in nature.

Program visibility and distinctiveness: as previously stated, the program is one of 12 programs in Michigan. As such, it is not especially visible as would be a program that is the only one of its type. It is distinctive in the amount of time that students spend on campus learning to perform scans.

Program's value: the DMS program at Ferris provides graduates to fill positions in the health care facilities and agencies in the state of Michigan and beyond.

Characteristics, quality and employability of students: The average age of students enrolled in the sonography program is 28.8 years. Beginning in the Fall, 2005, entry requirements for the program include :

- 3.0 high school GPA or 2.5 College GPA
- 21 math ACT score or a "C" or better in math 115
- 19 science reasoning ACT score or a "C" or better in a college level science course

Since implementation of the entry requirements, the attrition rate for students has dropped from 35% to 0%. Graduates are able to find employment in their field.

Quality of curriculum and instruction: The curriculum has been recently revised to improve its quality and to more adequately prepare graduates to sit for the ARDMS examination. Instruction is appropriate for the courses taught.

Composition and quality of the faculty: The faculty is qualified by experience to provide instruction in the sonography program. Both are credentialed in their fields and both have extensive professional experience prior to entering the academic setting. As a condition for tenure, both faculty members are required to earn a masters degree. Both are enrolled and are on track to complete their degrees on time.

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES

Department of
Dental Hygiene
and
Medical Imaging

To: **Members of Program Review Committee**

From: **Theresa A. Raglin, Department Head**

Date: **August 16, 2006**

Re: **Diagnostic Medical Sonography**

Relationship to Mission

The Diagnostic Medical Sonography Program continues to meet the mission of FSU. The program provides innovative career-oriented education.

Program Visibility and Distinctiveness

As a relatively new program at FSU, the Diagnostic Medical Sonography Program has just begun to gain visibility in the state of Michigan. During May of 2006, the program was showcased at the Michigan Society of Diagnostic Medical Sonographers' Annual Conference.

The program provides a distinct educational experience. Students spend three semesters at the Big Rapids campus honing and refining their clinical skills prior to three semesters of internship at a clinical affiliate. This is a unique model when compared with other programs in the state. Graduate surveys continue to support and reflect the strength of the on-campus laboratory experience. Employer surveys reflect the high level of clinical skills achieved by the graduates.

Program Value

As the only diagnostic medical sonography program north of Grand Rapids, FSU is meeting the needs of our northern residents. Students from northern Michigan are provided the opportunity to attend a program closer to home.

The DMS program is meeting the needs of the employers. Graduates are in demand and employers consistently rank them high. The Bureau of Labor Statistics projects an increased consumer demand for sonographers as this method of diagnostics provides a safer alternative to radiation.

Enrollment

Enrollment is steady in Diagnostic Medical Sonography Program. The program maintains a two-three year waitlist for entrance into the professional sequence of courses. Class size is limited to twenty students in this equipment intensive program. The competition for clinical internship sites is high and it would be difficult to increase class size and provide quality sites for students.

200 Ferris Drive, VFS 209
Big Rapids, MI 49307-2226

Phone: (231) 591-2261
Fax: (231) 591-2325
Web: www.ferris.edu

Characteristics, Quality and Employment

Registry exam rates are consistently above the national average for the graduates. As evidences by the employer survey, graduates rated high in the cognitive, psychomotor and affective domain. Sample comments included: good knowledge, exceptional, met expectations, confident and good work ethic. Graduates continue to experience a one hundred percent employability rate.

Quality of Curriculum and Instruction

The program developed and implemented an outcomes assessment plan during the 2005 academic year. A consequence of this assessment was a curriculum revision that will be implemented in fall 2007. Substantial changes and improvement has occurred within the short life of this program. Data obtained is excellent and will support the continual improvement and needs of the program. The curriculum revision that has occurred brings the program in compliance with the JRC-DMS accreditation standards. This new curriculum provides the program the first opportunity to apply for specialized programmatic accreditation. Application for specialized accreditation is planned for December 2006.

Composition and Quality of Faculty

The faculty members in the DMS program are highly qualified and credentialed sonographers. Both are currently enrolled in a master of science degree program and are on target toward graduation. Student and graduate surveys express satisfaction with the quality of faculty. The faculty continue to demonstrate dedication to this program through their commitment to student success.

Adequacy of Resources

Resources are adequate to support and meet the current needs of the program, faculty and students. Departmental funds are limited to support faculty travel and continuing education. The program currently does not have the ability to earn incentive dollars that often support the extras needed. Equipment is aging and newer technology is now available. Anticipated equipment purchases will need to occur in the future.

Future Goals

The major goal for the program is to apply for programmatic accreditation by the end of fall semester 2006. Prior to this year, the program was not eligible to apply for specialized accreditation. The other goal for the program after becoming JRC-DMS accredited is to provide a post graduate vascular certificate. This certificate is not offered by other programs in the state and will be unique for Ferris State University.

Overall Health of the Program

As a new program that began in 2001, the diagnostic medical sonography program has experienced numerous changes. A dedicated program coordinator was hired in 2003 and a clinical coordinator was added to the program in 2005. With two full-time faculty dedicated to the program, the program has flourished and established stability.

The results of the data collection are very good. The program is consistently rated high on assessment surveys. Outcomes are positive and will continue to be as the program establishes longevity at Ferris.

Table of Contents

	Page
Section 1: Overview of Program	1-9
Section 2: Collection of Perceptions	1-21
Section 3: Program Profile	1-27
Section 4: Facilities and Equipment	1-3
Section 5: Conclusions	1-2

Appendix A: Graduate Survey

Appendix B: Employer Survey

Appendix C: Graduate Exit Survey

Appendix D: Student Program Resource Survey

Appendix E: Faculty Evaluation Questionnaire
Program Personnel Resource Survey

Appendix F: Adjunct Clinical Instructor Survey

Appendix G: Administrative Program Review

Appendix H: DMS Program Outcomes

Appendix I: Curriculum Check Sheets

Appendix J: Sample Course Syllabi

Ferris State University

Academic Program Review
Diagnostic Medical Sonography Program
2006-2007

Section 1: Overview

Diagnostic Medical Sonography Mission Statement:
The Diagnostic Medical Sonography Program at Ferris State University prepares its graduates to support the medical diagnostic needs of the citizens of the state of Michigan and beyond. The curriculum is structured to provide learning and experience in didactic, laboratory, and clinical settings. The program emphasizes the ethical and professional responsibilities of a sonographer, which include providing quality patient care and professional service to local and global community organizations.

Description of the program
The Diagnostic Medical Sonography Program is a two-year associate degree program that prepares students for entry level positions in medical sonography. The program is structured with six consecutive academic semesters, the first three of which are taught on the Big Rapids campus. During the first three semesters, students learn the physics and safety of ultrasound. Students also learn and practice professionalism, ethics, anatomy and physiology of organs, diagnostic skills, scanning techniques and protocols in the classroom and in a fully functional ultrasound lab on campus. Students are required to possess mastery skills in full abdominal and gynecological scanning before entering internships throughout the state.

During the three semesters of their second year of the program, students complete full-time internships performing and diagnosing sonographic images. During this year, students continue to learn didactic material, as well as develop professionalism, ethics and critical thinking in both scanning and diagnostic skills.

History of Program
The Diagnostic Medical Sonography Program was instituted in the fall of 2001 at the request of several local sonographers. The program was needed to deliver ultrasound education to future practitioners in Western and Northern Michigan.

During the first two years of the program, there was significant turnover in the faculty resulting in the uncertainty of the program. Internship oversight was poor because of this faculty turnover and the fact that there was only one faculty member assigned to the program. Community support was tenuous. The turnover in staff and the lack of communication with the clinical affiliates caused many of the students in the first two cohorts to feel misled and dissatisfied with the DMS program.

The program began to improve in the fall of 2003 when Michelle Weemaes, BS, RDMS, RVT, was hired as the Program Coordinator and tenure track faculty member. Under her leadership, a curriculum clean-up was implemented; the new curriculum aligned the entrance requirements with the Joint Review Committee-Diagnostic Medical Sonography (JRC-DMS) standards to prepare the program for future accreditation. To assist Ferris State University in preparing for accreditation, a JRC-DMS site visitor, Kerry Weinberg, MPA, RT ®, RDMS, RDCS, was hired as a consultant to assess the program for its readiness to write the JRC-DMS self-study. Based on Ms. Weinberg's recommendations, the program revised its curriculum and obtained a second faculty line to support a tenure track Clinical Coordinator. Although it was clear the program needed an appropriately-

credentialed Clinical Coordinator, the initial search for this position was unsuccessful. As a result, Michelle Weemaes served as both the Program and Clinical Coordinator for the Diagnostic Medical Sonography Program during the 2004-2005 academic year.

In the fall of 2005, Sonya Knoll, BS, RDMS, was hired in a tenure track faculty position to serve as the Clinical Coordinator for the DMS Program. With the addition of Ms. Knoll, the program was fully staffed with appropriately credentialed sonographers. The FSU DMS Program was then officially eligible to apply for accreditation through the JRC-DMS, the commission that makes recommendations to Commission on Accreditation of Allied Health Education Programs (CAAHEP) for programmatic accreditation. During the summer of 2006, DMS faculty are preparing the program's self-study documents for submission in December.

A. Program Goals

1. The Ferris State University Diagnostic Medical Sonography program goals are to produce graduates who will be able to:

   - Communicate effectively to acquire, develop and convey ideas in diagnostic medical sonography.
   - Practice their profession adhering to the ethical, legal and professional conduct expected of a diagnostic medical sonographer.
   - Utilize the knowledge and clinical competencies required to provide current, comprehensive diagnostic medical sonography.
   - Evaluate and interpret ultrasound films using critical thinking skills.
   - Become competent entry-level practicing sonographers.

2. Current goals of the program have been established by a cooperative effort involving program faculty, advisory board, and industry standards set forth by the American Registry for Diagnostic Medical Sonography (ARDMS) and the Society of Diagnostic Medical Sonography(SDMS).

3. The program faculty has a strong desire to educate highly-qualified diagnostic medical sonographers. The adjunct clinical instructors and advisory board members were integral in setting the program's needs and outcomes. The development and revision of the curriculum and program goals has relied heavily on both community parameters and the minimum standards necessary to pass the national ultrasound boards.

4. The goals of the DMS Program have not changed since 2004. This is the first academic program review cycle for the Diagnostic Medical Sonography Program.

5. The following form demonstrates the relationship between the University's Mission with the College of Allied Health's goals and the DMS Program goals:

FSU University Goals	FSU College of Allied Health Goals	FSU DMS Goals	Competency Objectives	Evaluated Mechanism	When Evaluated	Who Collects the Data	Who Assesses Data	Results	Resulting Action	Program Improvement as Result of Data
1. To create learning-centered university.	1. Engage in curriculum development to meet current and emerging needs of students and employers.	1. Produce graduates who will be able to utilize the knowledge and clinical competencies required to provide current, comprehensive diagnostic medical sonography.	A. Sonographers must possess core competencies, ethics, values, and skills.	National Board scores (ARDMS and ARRT)	Annually	Program Coord.	Faculty	*80%	Continue to work with faculty in courses to assist students, annual faculty review of ARDMS standards and content. Prepare students for boards through simulated clinical exams, written exams, and case study work.	Added two critical thing courses to implemented starting fall of 2007.
			B. Sonographers must use their skills to evaluate, scan, and interpret ultrasound images.	Writing assignments	Annually	Program Coord.	Faculty	100%		Increased writing requirements to Sono 110, Sono 130, and Sono 120.
				Graduate surveys	2 years	Program Coord.	Faculty			
	2. Develop plans to upgrade instructional technology and/or facilities in select disciplines to ensure curricular currency and academic excellence.	2. Produce competent entry-level practicing sonographers.		Employer surveys	2 years	Program Coord.	Faculty			Increased writing requirements to SONO 110, SONO 120, and SONO 130.
				Course pass rates	Each semester	Faculty Program Coord.	Faculty	100 – 95%		

2. To create a university that works together.	3. Collaborate with employers, community college and state entities to address the workforce shortages of sonographers and educators.	4. Produce graduates who will be able to communicate effectively to acquire, develop, and convey ideas in diagnostic medical sonography.	C. Sonographers must passess transferable skills, e.g., in communication, problem-solving, and critical thinking.	Writing assignments Case study presentations Employer surveys Advisory Committee	Each semester SONO 110, 130, 291, 292, and 293 Annually	Faculty Faculty Program Coord.	Faculty Faculty Program and Clinical Coord.	100% earned C+ or better 100% earned B- or better	Increase writing and presentation requirements in the program. Increase the use of problem solving case study based essay questions into the curriculum.	Students are more prepared to answer case study questions. Students have been able to use problem solving skills into their coursework and preliminary diagnosis. Improved satisfaction of students from clinical affiliates.

3. To create an engaged campus.	4. Host a variety of events to enhance the sense of community among students, faculty, staff, alumni, and friends of the College. 5. Enhance alumni relations and the involvement of the alumni in the life of the College.	5. Produce graduates who will practice their profession adhering to the ethical, legal, and professional standards expected of a diagnostic medical sonographer.	D. Graduates must be aware of a variety of opportunities for professional growth and development.	Behavioral traits, competencies demonstrated in on-campus scanning labs, as well as competencies passed in SONO 291, 292, and 293. Ethics writing assignment in SONO 100. Students engage in at least one community service project during their program.	Each semester except 1st year Fall Annually Annually	Faculty Faculty Program Coord.	Faculty Faculty Program Coord.	100% earned A- or better 100% earned C or better 100%	Behavioral traits competencies introduced in all scanning labs, as well as, clinical internship Understanding of ethical issues demonstrated in writing assignments and tests Participation in a community service project enhances student empathy and professional growth.	Students show improved professionalism traits in the clinical setting. Mandatory involvement of community service projects fosters a lifelong interest in helping others. Student membership in professional DMS organizations improved 50%. The number of internship semesters was increased from 2 to 3 to better fulfill the community needs of an entry level sonographer

B. Visibility and Distinctiveness

1. The Ferris State University DMS Program is one of twelve ultrasound programs in the state. It is one of two university-based programs providing students with the advantages and experience of living on a college campus. Ferris also offers the students the ability to complete an inverted Bachelors Degree while completing the DMS program. Ferris has the distinction of being the only program in the state to require an entire year on campus with ultrasound scanning experience prior to a hospital-based internship. The advantage of this model is that Ferris students know how to correctly and safely use ultrasound imagers, thus recognizing and producing normal anatomy images on their first day of internship. Ferris students also practice and develop professionalism, ergonomics, and develop critical thinking skills in the lab before entering the clinical site. The Ferris model is a benefit to the clinical affiliates because they can scan full abdominal protocols with a sound didactic foundation from the first day of internship. Other DMS programs in the state start their student didactic training during the internship period. The FSU DMS Program provides an annual physics board review for the imaging community to foster public goodwill.

2. The DMS Program attracts quality students by:
   - Recruiting students in high schools and career technical centers.
   - Participating in DAWG Days, Educator's Academy and Allied Health Science Camp.
   - Participating as an exhibitor/recruiter at the Michigan Sonographers' Association Annual Session.

   In addition, to attract quality students the DMS program made two program revisions.

   Increase the entrance requirements to:
   - 3.0 high school GPA or 2.5 College GPA
   - 21 math ACT score or a "C" or better in math 115
   - 19 science reasoning ACT score or a "C" or better in a college level science course

   Establish prerequisites to be eligible for programmatic accreditation through JRC-DMS and CAAHEP. The following courses have been identified as indicators of student preparedness for the program from the JRC-DMS:
   - "C" or better in Bio 109
   - "C" or better in MRIS 102 or competency
   - "C" or better in Physics 130
   - "C" or better in English 150 or competency

   Since adopting these entrance requirements the attrition rate has dramatically improved from seventy to ninety percent.

3. DMS Competitors

   The biggest competitors to the Ferris DMS Program are the other community colleges and one university in Michigan:
   - Lansing Community College

- Jackson Community College
- Oakland Community College
- Delta Community College
- Baker College
- Grand Valley State University

Each of our competitors has a fully integrated program. Other programs teach the scanning and lab component of their curriculum during their internship rotation. FSU students have the advantage of spending three semesters in our on-campus laboratory prior to clinical placement. FSU interns have a more beneficial experience since they are fully prepared when they enter the clinical site. Another advantage to the on-campus lab model is we teach ergonomics, professionalism, and ethics during the first year of the program. The Ferris Sonography Program faculty believes professionalism and ethics can be taught and are the foundation on which the program stands.

The FSU program can learn from the community college model the ability to take a clinical experience and discuss it or correlate it in the classroom. The DMS Program is looking for a way to introduce a beginning scanning experience in a clinical lab during the first year of the curriculum. The program is in the process of building a pathology library to provide on campus students a more reality based case-study experience.

One obstacle to the program is the two-three year waitlist. The program can only accept twenty students a year due to a limited number of clinical sites. There are three competitive entrance ultrasound programs in the state of Michigan, so the very best students will often attend one of those programs instead of remaining on a long wait list.

C. Program Relevance

The program produces competent entry level sonographers who can contribute to the medical community.

1. Employment Outlook

The Department of Labor states that:

Employment of diagnostic medical sonographers is expected to grow much faster than the average for all occupations through 2014. In addition to job openings from growth, some job openings will arise from sonographers who leave the occupation permanently.

Graduate employment opportunities should be favorable because sonography is becoming an increasingly attractive alternative to radiologic procedures, as patients seek safer treatment methods. Unlike most diagnostic imaging methods, sonography does not involve radiation. Harmful side effects and complications from repeated use are rare for both the patient and the sonographer. Sonographic technology is expected to evolve rapidly and to spawn many new sonography procedures, such as 3D- and 4D-sonography for use in obstetric and ophthalmologic diagnosis. However, high costs may limit the rate at which some promising new technologies are adopted.

Hospitals will remain the principle employer of diagnostic medical sonographers. Employment is expected to grow more rapidly in offices of physicians and in medical and diagnostic laboratories, including diagnostic imaging centers. Health-care facilities such as these are expected to grow very rapidly through 2014 because of the strong shift toward outpatient care, encouraged by third-party payers and made possible by technological advances that permit more procedures to be performed outside the hospital.

Current statistics reported by the SDMS (Society for Diagnostic Medical Sonographers) indicate that half of the nation's sonographers are age 50 or older. As the aging sonographers in Michigan retire, Ferris graduates will be able to compete for those positions.

2. Emerging Issues, Labor Force, Employer Needs and Student Needs
The DMS program assesses emerging issues within sonography using the following resources: employer needs, graduate needs, advisory board advice, student needs, and national workforce issues by staying current in professional organizations.

The following are example of workforce issues that have been addressed by the program since 2003:

1) A labor force issue facing all diagnostic medical sonographers is musculo-skeletal disorders, especially carpal tunnel and shoulder injuries due to repetitive movement. To address this issue ergonomics was added to the curriculum and proper ergonomics are enforced in all on campus scanning labs beginning with the 2004-2005 academic year.

2) During the 2005 Advisory Meeting, labor force issues were addressed with the participants. The need for a vascular certificate was emphasized.

3) During the 2005 Adjunct Clinical Instructor meeting, discussion was held regarding the needs of employers. Employer surveys were conducted during this time. As a result of these discussions, the following areas were increased in the curriculum:

- Critical thinking
- Technical writing
- Peripheral vascular content
- Internship requirement (2 semesters to 3 semesters)

Theses changes were implemented throughout the 2005-2006 academic school year.

4) The FSU DMS Program competes to secure local sonography internship sites. Students receive clinical placements through out the state including in the Upper Peninsula. The Department of Dental Hygiene and Medical Imaging is working with the Northern Area Health Education Center to identify housing and financial stipends for interns sent to the Upper Peninsula.

3. Why students come to Ferris for Diagnostic Medical Sonography?

This question is not addressed on our graduate survey. However, according to an informal study of study of students enrolled in SONO 120, the students listed the following reasons for enrolling in the DMS Program:

- On-campus scanning lab.
- Hands-on experience.
- Small class size.
- Reputation of program and faculty.

D. Program Value

1. The DMS Program benefits the university by offering a unique program. The on-campus lab equipped with five imagers is an incentive for students to enroll at FSU.

2. This well equipped lab is not available to students in other Michigan programs. The students spend numerous lab hours on campus practicing ultrasound protocols before entering the clinical experience. The students arrive at the clinical site ready to perform well because they have had considerable practice in scanning and critical thinking on campus. The imagers and simulators offer a safe and substantial background for students to learn without compromising patient health. The DMS faculty are dedicated to the profession of sonography and to Ferris State University.

3. The value of the FSU DMS Program is to provide future sonographers to meet the national shortage. This shortage is projected to increase over the next ten years. Reports from the SDMS reveal half of the nation's sonographers, including Michigan, are age 50 or older. Ferris State University DMS graduates are employed nationwide. Employer surveys reflect Ferris DMS graduates are meeting the needs of the community. An overall ranking of the graduate's knowledge of ultrasound was 4.9 on a 1-5 Likert type scale. This was reported in employer surveys completed in 2005.

4. The faculty participate in local, statewide and national continuing education activities. Program Coordinator, Michelle Weemaes, was selected to be on the Standard Setting Board for the Primary Ultrasound Credentialing Exam given by the American Registry of Radiologic Technologists (ARRT). Clinical Coordinator, Sonya Knoll, is a past President of the Michigan Sonographers' Society. DMS faculty have been chosen to speak at the Lilly North Conference, as well as state ultrasound meetings. Both faculty members are interested in staying current with state and national ultrasound organizations. This participation keeps faculty current with ultrasound issues and brings recognition to the program. DMS faculty are leaders and mentors who encourage students to become active in their community and profession.

5. Faculty and students have provided services to groups outside the university. First year DMS students recently conducted a fundraiser for the American Cancer Society. Service learning projects have been added to the curriculum for the 2006-2007 academic year.

Section 2: Collection of Perceptions

Survey instruments and reporting spreadsheets are provided by the JRC-DMS. These tools must be used for programmatic accreditation and were approved by FSU Institutional Research.

A. Graduate Surveys

Overall, the graduates of the DMS program report they are well prepared for their careers as entry-level sonographers.

Results of the 2003 and 2004 graduate surveys:

GRADUATE FEEDBACK MATRIX

The following results are measure on a 1-5 Likert scale used in the JRC-DMS form G. The Graduate Survey can be found in Appendix A.

#	EVALUATION INSTRUMENT	LEARNING DOMAIN	DATE (S) OF MEASUREMENT	RESULTS – ANALYSIS (COMPOSITE SUMMARY)	ACTION PLAN
1	GRADUATE SURVEY	**Cognitive Domain**	2-2006 2 and 3 years after graduation	3.48	To improve didactic learning four additional classes have been introduced, lab classes have been separated into didactic and lab courses, faculty teaching strategies have been revised, outcomes assessment has been implemented, critical thinking skills have been infused into every class in the curriculum and clear goal for each course have been established.
2	GRADUATE SURVEY	**Psychomotor Domain**	2-2006 2 and 3 years after graduation	3.6	The use of the simulator has been greatly decreased and scanning of actual people has been imple-mented, ergonomics has been added as well as professionalism and behavioral traits are taught and assessed each lab and internship course.
3	GRADUATE SURVEY	**Affective Domain**	2-2006 2 and 3 years after graduation	4.0	Writing and speaking skills have been increased in each course within the curriculum. Case studies are presented as an alternative to multiple choice questions to improve technical writing and critical thinking skills. A mock registry is given during a capstone course to improve readiness for registry exams.

There was a return rate of 26 % for the combined 2003 and 2004 DMS graduates. The response rate is attributed to young female graduates who commonly marry, change last names and relocate upon graduation.

Results of the 2005 graduate surveys:

GRADUATE FEEDBACK MATRIX

The following results are measure on a 1-5 Likert scale used in the JRC-DMS form G. This is the same survey used for the 2003 and 2004 Graduates found in Appendix A.

#	EVALUATION INSTRUMENT	LEARNING DOMAIN	DATE(S) OF MEASUREMENT	RESULTS – ANALYSIS (COMPOSITE SUMMARY)	ACTION PLAN
1	Graduate Survey	**Cognitive Domain**	1-2006 8 moths after graduation	4.26	We have implemented two program revisions to add additional critical thinking courses into the curriculum.
2	GRADUATE SURVEY	**Psychomotor Domain**	1-2006 8 months after graduation	4.	Will monitor – we cannot increase lab scanning time on campus or during the 40 hour internship week.
3	GRADUATE SURVEY	**Affective Domain**	1-2006 8 months after graduation	4.45	We have increased both writing and speaking assignments into the 2005-2006 curriculum- will continue to monitor.

The 2005 graduate survey results were significantly more positive than those of previous classes. It is expected that the 2006 graduate results will demonstrate continued improvement as the program refines its teaching and outcome assessment techniques. Response rate for the 2005 graduating class was 66%. Scores reported are an average of all respondents.

DMS graduates enjoyed a one hundred percent job placement rate as reported through institutional research in their 2003-2004 Graduate Survey Report. An informal survey of 2005 DMS graduates performed by DMS program faculty also demonstrated one hundred percent placement. Based on student and graduate survey results, the majority of DMS graduates are very satisfied with the program.

The following are comments made by the graduates pertaining to the strengths and weaknesses of the program:

Student Comments

Student Number	Comments on the strengths of the program Comments on improvements for the program	
1	**Strength**	~ Working with a trained Sonographer/RDMS ~ Hands on experience before clinicals
	Need Improvement	~ Better prepare students for boards ~ Better preparation for employment after graduation ~ Become accredited
2	**Strength**	No comments
	Need Improvement	No comments

3	**Strength**	~ Scanning labs ~ Schooling prior to clinicals
	Need Improvement	~ Better explain Knobology using the machine rather than out of the book ~ More OB/Gyn studies, patient positioning, and Doppler studies
4	**Strength**	~ Flexibility of clinical sites ~ Simulator ~ Helpful determination of instructors
	Need Improvement	~ Institute a certification program ~ Become accredited ~ Encourage future students to complete all requirements for the degree prior to or at the same time as the DMS program ~ Have a clinical coordinator
5	**Strength**	No comments
	Need Improvement	~ More clinical time ~ More pathology review
6	**Strength**	~ Clinicals are excellent ~ Lab was very beneficial
	Need Improvement	~ Organize lab better ~ Become Accredited ~ Conduct lab following hospital scenarios (fill out requisitions, history, etc.) ~ Have future students job shadow at hospital
7	**Strength**	~ Knowledge before clinicals
	Need Improvement	~ More sonographer/patient simulations to develop professionalism
8	**Strength**	~ Clinical was excellent
	Need Improvement	~ More "board focused" bookwork ~ More vascular ultrasound ~ More board review while on clinicals
9	**Strength**	~ Hands on scanning ~ Physics review was very helpful
	Need Improvement	~ Higher entrance standards
10	**Strength**	No comments
	Need Improvement	No comments
11	**Strength**	~ Length of internships ~ Strong emphasis on anatomy ~ Class on clinical skills was beneficial
	Need Improvement	~ Less emphasis on paperwork and more on scanning quality ~ More time spent with machines in lab ~ More knobology ~ More vascular skills
12	**Strength**	~ Learning of the anatomy ~ Pathology review was beneficial
	Need Improvement	~ Become accredited ~ Base classes on board review books ~ More vascular studies

13	**Strength**	~ Scan time was beneficial ~ Learning anatomy and physiology before pathology was very helpful
	Need Improvement	~ Mock case presentation and questioning to prepare for Radiologists ~ Better preparation for invasive procedures and surgeries ~ Have future students visit hospitals before clinicals
14	**Strength**	No comments
	Need Improvement	No comments
15	**Strength**	~ Classes were challenging
	Need Improvement	~ More than one professor teaching and running clinicals ~ Require students to job shadow if possible
16	**Strength**	~ Hands on time in lab and clinicals was very helpful ~ Good focus on what board exams are like
	Need Improvement	~ Anything not learned in class was learned in clinicals – no improvements necessary
17	**Strength**	~ Learned a lot at clinical site ~ Course content was highly applicable
	Need Improvement	~ More vascular studies ~ Require students to put hospital time in before clinicals

The most common comment by graduates regarding program strength pertains to the on-campus scanning experience. This experience is central to how faculty believe sonography should be taught, and it is worth noting that students realize the benefit of the Ferris model of teaching sonography. One of the outcomes of the Ferris DMS program is to graduate sonographers who act ethically and professionally. In an age in which programs are being taught online or where clinical affiliates do all of the skills training, it is noteworthy that the affective domain constitutes the highest rated skill set on the graduate survey. Ferris DMS faculty are committed to teaching not only clinical skills but the importance of being an engaged member of society who can act ethically and professionally. We reject the notion that these skills cannot be taught and believe it is one of the pillars on which this program is built. The benefit of the on-campus scanning experience is that it extends far beyond scanning skills and into the affective domain.

The most common comment pertaining to program improvement was in regard to vascular experience, which is not being taught in the current program. Ferris faculty agree that time and resources necessary to teach vascular ultrasound currently are limited. Once the program is accredited, the addition of a vascular certificate will be addressed.

Another commonly reported comment was the need to become an accredited program. The programmatic accreditation self-study will be completed during the fall of 2006.

B. Employer Surveys

The hospitals and clinics that employ Ferris DMS graduates are very pleased with our program. Each of the fifteen employers that returned the survey noted that Ferris graduates were very well prepared for the entry level sonographer position. The following is a summary of the employer survey results.

EMPLOYER FEEDBACK MATRIX

Scores reported are an average of all respondents based on a 1-5 Likert scale. The Employer Survey can be found in Appendix B.

#	EVALUATION INSTRUMENT	LEARNING DOMAIN	DATE (S) OF MEASUREMENT	RESULTS – ANALYSIS (COMPOSITE SUMMARY)	ACTION PLAN
1	EMPLOYER SURVEY	**Cognitive Domain** knowledge base of the graduate	2-2006 8 months after graduation	4.94	A yearly physics board review is offered to improve retention of physics principles.
2	EMPLOYER SURVEY	**Psychomotor Domain** clinical proficiency of the graduate	2-2006 8 months after graduation	4.86	New scanning techniques will be monitored and ergonomics will continue to be stressed within the curriculum.
3	EMPLOYER SURVEY	**Affective Domain** behavior skills of the graduate	2-2006 8 months after graduation	4.94	Continuous role playing on campus and sonography behavioral trait monitoring in all courses.

The following grid contains the comments made on the employer feedback surveys:

Employer Comments

Employer Number	Comments on the strengths of the program Comments on improvements for the program	
1	**Strength**	~ Good knowledge of exams ~ Excellent patient care
	Need Improvement	~ More carotid ultrasound
2	**Strength**	~ Student met all expectations ~ Student had good connection of knowledge from machine to patient
	Need Improvement	~ Extend program to include vascular and/or cardiac sciences
3	**Strength**	No comments
	Need Improvement	No comments
4	**Strength**	~ Student interview was very impressive – very confident ~ Student was well educated in a wide field of scanning
	Need Improvement	No comments

5	**Strength**	~ Very good student
	Need Improvement	No comments
6	**Strength**	~ Student showed a lot of confidence and knowledge of subject
	Need Improvement	No comments
7	**Strength**	~ Student had good work ethic and was exceptional
	Need Improvement	No comments
8	**Strength**	~ Good knowledge of profession
	Need Improvement	~ Board eligibility

C. Graduating Student Exit Survey

The following survey was given to the graduating class of 2006 after the final exam. The entire class completed the survey resulting in a one hundred percent return rate. The results of the survey are very good. With exception of appropriateness of books, all responses were scored good or excellent. The following matrix is the results of the exiting graduate survey.

Graduating Student Exit Survey

Scores reported are an average of all respondents based on a 1-5 Likert scale. The Graduating Student Exit Survey can be found in Appendix C.

#	QUESTION	RESULTS – ANALYSIS (COMPOSITE SUMMARY)	ACTION PLAN
1	Appropriateness of textbooks	3.9	New textbooks are being used in the program
2	Appropriateness of test and quizzes	4.5	Continue to monitor
3	Organization of classes	4.33	Continue to monitor
4	Practicality of required courses	4.73	Continue to monitor
5	Schedule of classes and labs	4.66	Continue to monitor
6	Availability of instructors outside of class	4.75	Continue to monitor
7	Instructor feedback	4.66	
8	Use of audio visuals	4.1	Additional audio visuals have been incorporated into lecture
9	Quality of educational resources	4.5	Continue to monitor
10	Quality of library services	4.58	Continue to monitor
11	Overall effectiveness of academic portion of the program	4.5	Continue to monitor
12	Organization of the clinical program	4.16	Continue to monitor
13	Availability of and professional ability of clinical coordinator	4.6	Continue to monitor
14	Availability of and professional ability of clinical instructor	4.75	Continue to monitor

15	Communication between clinical staff and students	4.3	Continue to monitor
16	Professionalism of clinical staff	4.4	Continue to monitor
17	Amount of time spent in clinical	4.8	Continue to monitor
18	Use of rotations used outside of radiography	Not applicable	Not measured
19	Length of rotations	4.2	Continue to monitor
20	Overall effectiveness of clinical program	4.7	Continue to monitor
21	Enforcement of clinical policies	4.4	Continue to monitor
22	Programs willingness to incorporate student ideas		Continue to monitor
23	Overall effectiveness of the program	4.6	Continue to monitor
24	Overall effectiveness of student services	4.6	Continue to monitor
25	Overall effectiveness of leadership of college administration	4.7	Continue to monitor

D. Student Program Evaluation

The following is the formal evaluation students have completed for the program. This survey was written by the JRC-DMS in preparation for a programmatic self-study was distributed online by Ferris Institutional Research for second year students to complete in November of 2005. These students were in their first semester of internship at the time of completion. Each student intern completed the survey. The Student Program Resource Survey can be found in Appendix D.

The results are as follows:

Student Program Resource Survey
Ferris State University
Diagnostic Medical Sonography Program

The purpose of this survey instrument is to evaluate our program resources. The data compiled will aid the program in an ongoing process of program improvement.

PERSONNEL RESOURCES (PROGRAM FACULTY)

Q1 **Faculty**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Teach effectively in the classroom.	6	6	1	0	0	1
Teach effectively in the laboratory.	5	7	1	0	0	1
Teach effectively in the clinical area.	7	5	1	0	0	1
Number is adequate in the classroom.	6	7	0	0	0	1
Number is adequate in the laboratory.	4	8	0	1	0	1
Number is adequate in the clinical area.	7	6	0	0	0	1
Faculty members have good rapport with students.	7	5	2	0	0	0
Faculty members are willing to help students with academic needs.	5	8	1	0	0	0
Faculty ensures student representation on the advisory committee.	3	7	2	1	0	1

Q2 **Please use this area to make any additional comments about the above section.**

4

PHYSICAL RESOURCES

Q3 **Instructional Resources: Classrooms**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Are adequate in size.	5	7	1	0	0	1
Have adequate lighting.	5	7	1	0	0	1
Contain adequate seating.	5	7	1	0	0	1
Have adequate ventilation.	5	6	1	1	0	1
Are provided with appropriate equipment to support effective instruction.	5	7	0	0	1	1

Q4 **Instructional Resources: Laboratory**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Are adequate in size.	5	7	1	0	0	1
Have adequate lighting.	5	7	1	0	0	1
Contain adequate seating.	5	7	1	0	0	1
Have adequate ventilation.	3	7	1	2	0	1
Is equipped with the amount of equipment necessary for student performance of required laboratory exercises.	7	5	0	0	1	1
Is equipped with the variety of equipment necessary for student performance of required laboratory exercises.	7	5	0	0	1	1
Is equipped with the amount of supplies necessary for student performance of required laboratory exercises.	6	6	1	0	0	1
Is equipped with the variety of supplies necessary for student performance of required laboratory exercises.	7	5	0	1	0	1
Activities prepare the student to perform effectively in the clinical setting.	6	6	1	0	0	1
Is accessible to students outside regularly scheduled class times.	6	8	0	0	0	0

Q5 **Please use this area to make any additional comments about the above section.**

4

LEARNING RESOURCES

Q6 **LIBRARIES (SCHOOL AND CLINICAL AFFILIATES LIBRARIES)**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
The program faculty and/or the library personnel offer orientation and demonstration of the library services.	6	4	3	0	0	1
The institutional library personnel provide assistance to the students when needed.	6	5	2	0	0	1
The libraries provide sufficient materials to support classroom assignments.	6	3	4	0	0	1
The library hours are convenient to student schedules.	6	5	2	0	0	1
Program assignments require the use of library resources.	6	4	3	0	0	1

Q7 **STUDENT INSTRUCTIONAL SUPPORT SERVICES (TUTORS, COMPUTER LAB, ETC.)**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Tutors provide assistance to the students when needed.	9	2	1	0	0	2
Audiovisual and computer equipment are available to students for class assignments and activities.	7	2	3	0	0	2
Computer resources are adequate to support the curriculum.	8	3	0	1	0	2
Student Instructional Support Services are readily accessible to all students.	8	2	2	0	0	2

Q8 **Please use this area to make any additional comments about the above section.**

2

CLINICAL RESOURCES

Q9 **CLINICAL ROTATIONS (FACILITIES)**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
The clinical facilities offer an adequate number of procedures for the student to meet clinical objectives.	6	6	2	0	0	0
The clinical facilities offer an adequate variety of procedures for the student to meet clinical objectives.	7	6	1	0	0	0
The clinical facilities provide a variety of current equipment.	8	5	1	0	0	0

Q10 **CLINICAL ROTATIONS (EXPERIENCES)**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Each clinical rotation is of sufficient length to enable the student to complete clinical objectives.	8	6	0	0	0	0
Each clinical rotation provides sufficient number of hands-on patient scanning.	6	7	1	0	0	0
Clinical rotations are sufficient to provide overall equivalent competencies for all students.	8	4	2	0	0	0

Q11 **CLINICAL INSTRUCTION**

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Students are adequately oriented to assigned clinical areas and procedures.	6	6	2	0	0	0
Clinical instructors are sufficiently knowledgeable to provide student instruction.	9	5	0	0	0	0
Clinical instructors direct the students in completing the assigned objectives.	8	4	1	1	0	0
Clinical instructors are consistent in their evaluation of student performance.	8	5	1	0	0	0
Clinical instructors are readily available to assist students when needed.	9	4	1	0	0	0

Q12 **Please use this area to make any additional comments about the above section.**

1

PHYSICIAN INTERACTION

Q13

	Strongly Agree	Generally Agree	Neutral	Generally Disagree	Strongly Disagree	N/A
Physician/student interaction facilitates the development of effective communication skills between physicians and students.	7	2	3	0	0	2
Physician contact is sufficient to provide the student with a physician perspective of patient care.	7	3	3	0	0	1
Overall student exposure to physicians in the program is adequate.	7	4	2	0	0	1

Q14 **Please use this area to make any additional comments about the above section.**

1

Additional Comments

Q15 **How long have you been a student in the program?** 14

Q16 **Please rate the OVERALL quality of the resources supporting the program.** ***(Please mark only one.)***

	Excellent	Very Good	Good	Fair	Poor
I rate the overall quality as	2	8	4	0	0

Q17 **Based on your experience, which program resources provided you with the most support?**

9

Q18 **Based on your experience, which program resources could be improved?**

7

Q19 **Please provide comments and suggestions that would help to improve the program's overall resources.**

6

Resources Providing Most Support

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	35.7	35.7	35.7
	Enjoyed the scanning practice in lab while at school	1	7.1	7.1	42.9
	lab	1	7.1	7.1	50.0
	lab in vhs building	1	7.1	7.1	57.1
	NA	1	7.1	7.1	64.3
	No comment.	1	7.1	7.1	71.4
	teachers	1	7.1	7.1	78.6
	the clinical sites and the instructors	1	7.1	7.1	85.7
	The instructor at ferris	1	7.1	7.1	92.9
	The protocol books and all of the other sonography books were very helpful when learning where to start with scanning.	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Resources Need Improvement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		7	50.0	50.0	50.0
	A bigger lab area would be beneficial.	1	7.1	7.1	57.1
	more class time.	1	7.1	7.1	64.3
	More help scanning in lab	1	7.1	7.1	71.4
	NA	1	7.1	7.1	78.6
	Resources in lab would be helpful. More learning tools, visual aids, movies.	1	7.1	7.1	85.7
	Smaller class sizes or more teachers/tutors for more hands on experience.	1	7.1	7.1	92.9
	the labs...we could use updated equipment	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Using a 1-5 Likert scale, the following average scores were reported by current students in the program:

DMS Program Area	Date of Measurement	Results Analysis	Action Plan
Faculty	1-2006	4.32	Because of high staff turn over, consistency will be built into the program with the two dedicated faculty members currently on staff.
Instructional resources/ classroom	1-2006	3.32	An update of the rooms in the VFS building is underway; lighting and ventilation concerns are being addressed.
Instructional resources/ lab	1-2006	3.76	Ultrasound equipment exceeds the amount in the annual budget; we continue to ask for Perkins funding and grants for updated imagers.
Libraries	1-2006	4.25	The library on campus continues to build a resource library for the DMS program. Faculty have requested learning tapes for clinical affiliates.
Student support services	1-2006	4.25	Computer lab and scanning labs are open at various times outside of class for student use.
Clinical rotations/ facilities	1-2006	4.47	Clinical sites will continue to be monitored for appropriateness.
Clinical rotations/ experiences	1-2006	4.25	Labs on campus have been increased from two hours to three hours to improve development of scanning skills.
Clinical instruction	1-2006	4.47	Clinical instruction is being modified to include more writing and critical thinking courses.

Physician interaction	1-2006	4.34	Clinical sites continue to provide adequate interactions with physicians.
Overall quality of resources supporting the facility	1-2006	3.86	Continuous monitoring is ongoing.

Comments from each part of the student program survey are printed below:

Comments and Suggestions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		*8*	*57.1*	*57.1*	*57.1*
	I think we just need more and better equipment for students	*1*	*7.1*	*7.1*	*64.3*
	I think you should start clinical after your class that tells you the proper way of acting because nothing replaces hands on learning, the book work would make a lot more sense to you.	*1*	*7.1*	*7.1*	*71.4*
	It would be helpful for a current student to be informed that if they leave the program for any reason to return at a later date that they must not be gone from the program more that 2 semesters without being enrolle	*1*	*7.1*	*7.1*	*78.6*
	Know what clinical sites have to offer in terms of number of scans and types of scans.	*1*	*7.1*	*7.1*	*85.7*
	More time dedicated to techniques/possibilities of the ultrasound transducer and machine.	*1*	*7.1*	*7.1*	*92.9*
	simmulated ultrasound equipment to use. Such as a baby in the womb, vaginal and testicle scanning.	*1*	*7.1*	*7.1*	*100.0*
	Total	*14*	*100.0*	*100.0*	

Additional Comments Faculty

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	71.4	71.4	71.4
	Don't feel that many of the options pertained to my situation. I am at clinicals and not in the classroom or laboratory.	1	7.1	7.1	78.6
	I feel the teachers in this program are trying the best they can with the resources available. This program is too new to be fully effective and consistent.	1	7.1	7.1	85.7
	I think the instructor could use some help in lab at times.	1	7.1	7.1	92.9
	need a helper in the lab for assistance	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Additional Comments Physical Resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	71.4	71.4	71.4
	Again I don't think that this survey applies to me since I am not on campus	1	7.1	7.1	78.6
	Lab was great, it really helped prepare me for clinicals. I appreciate the availability of the lab for our use and learning, and I think it gave my an edge over students from other programs	1	7.1	7.1	85.7
	The lab is great except the temperature control.	1	7.1	7.1	92.9
	This program needs more credit hours so we are better prepared for the clinical setting. There are no leardning tools to help us gain difficult concepts and techniques crucial for success in this field.	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Additional Comments Learning Resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		12	85.7	85.7	85.7
	Again...not on campus for this.	1	7.1	7.1	92.9
	I feel much of this class I had to teach myself. This program does not offer enough time for the teachers to spend with students to teach and aid them. more direction and instruction would be appreciated.	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

DISCUSSSION: Many of the comments reported on the surveys above were also reported on student SAI's completed on campus. As a result of these suggestions, the following program revisions were made and will be effective beginning fall semester of 2007:

First year courses

- A critical thinking course was added to the first semester in the professional sequence.
- The Sono 110, Abdominal and Small Parts, was separated into a didactic and a laboratory course. The small parts curriculum was taken out and will be its own stand-alone course on Web CT during the second year to improve students' ability to meet the outcomes of both courses.
- Lab course contact hours were increased from two to three hours per one credit hour to ensure mastery skill levels and meet course outcomes.
- Classroom improvements during Summer of 2006 in the CAHS Building will improve classroom size and comfort.

It is not unusual to hear students complain about not having the newest technology on campus. The faculty agree that too much updated equipment can actually be detrimental to the DMS program. Some of the newer equipment students prefer have "magic buttons" such as an optimizer that clean up images without using standard methods. There is a real benefit to learning how and why to use older machines manually in ultrasound. It helps teach learning concepts students need to pass their physics board and gives them a foundation to use any machine they may come across in a healthcare facility.

E. Faculty Perceptions

Two surveys were used in assessing faculty perception. Both studies were created by the JRC-DMS and were titled Program Personnel Resource Study and the Faculty Evaluation Questionnaire. These surveys were completed by the Program Coordinator and Clinical Coordinator, who are the only two faculty or staff members in the program. The following were scored on a 1-4 Likert scale, with 1=poor, 2=below average, 3=satisfactory and 4=above average. The Program Personnel Resource Study and the Faculty Evaluation Questionnaire surveys can be viewed in Appendix E.

FSU DMS Faculty Assessment Areas	Date Assessed	Result Analysis	Action Plan
Administrative Support	6-2006	4.0	Both the Interim Dean and Department Head are new for the 2005-2006 academic year, all parties are developing new relationships with their faculty. DMS faculty will continue to foster positive relationships.
Salary	6-2006	2.0 below average: New faculty without coordination duties are being hired in other programs at higher levels than the current DMS faculty salaries.	Continue to work with Dean and Department Head to raise awareness of this issue.

Financial Resources	6-2006	2.5 below satisfactory: program resources need to be built.	Faculty will look into grants and private funding for the program.
Teaching Loads	6-2006	3.5 above average	Continue to monitor.
Employers Support of Program	6-2006	3.0 satisfactory	Continue to foster and grow positive relationships with community healthcare facilities.
Curriculum Depth and Breadth of Program	6-2006	4.0 above average: Program changes seem to have brought the curriculum to a level at which it can be most effective.	Continue monitoring outcomes of DMS courses.
Curriculum Basic Sonography Curriculum Content	6-2006	4.0 above average:	Continue monitoring outcomes of DMS courses.
Curriculum Laboratory Practice and Competency Attainment	6-2006	4.0 above average:	Continue monitoring outcomes of DMS courses.
Clinical Coordination Communication between Coordinator and Preceptors	6-2006	3.5 above average:.	Continue building affiliate relationships. ACI training session was offered for all current ACI's summer of 2006.
Clinical Coordination Consistency of Evaluation of Students	6-2006	3.0 Satisfactory	Continue to monitor and improve teaching skills.
Clinical Coordinator Supervision of Students	6-2006	4.0 above average	Continue high level of student interaction during clinical rotation.
Facilities	6-2006	3.8 above average: Ventilation has been a concern in the sonography lab	The DMS program will be moving into a bigger and better ventilated room when a remodel is completed.
Instructional Resources	6-2006	4.45	Newer equipment and additional resources are needed to meet the needs of the updated curriculum.
Learning Resources	6-2006	4..5	CAHS Building classroom renovations during Summer of 2006 will improve current classroom conditions.
Program Support Personnel	6-2006	5.0 (on a 5- point scale)	Our secretary is highly competent.
Program Budget	6-2006	3.9	We continue to look for outside funding.
Clinical Rotations	6-2006	4.75	We will continue to use the very best clinical affiliates.

Physician Interaction	6-2006	1.0	This is a major problem, and faculty are at a loss as to how to deal with this issue.

Comments made on faculty surveys:

What resources provide the students the most support?

- Lab
- Faculty
- Lab
- Faculty

What program resources could be improved?

- Up-to-date equipment
- Lab equipment

What can help the overall program to succeed?

- Learning tapes
- Release time to keep up on new ultrasound technology and techniques
- More scanning probes
- Updated lab equipment

Discussion

Overall, the perceptions of the program are positive. Students are getting what they need, and the program is supported financially and with appropriate staff. The faculty are still in the process of building this program and are working through growing pains. Both faculty members are determined to make this the best sonography program in the state. At the current pace of improvement, this should be a reality in the not-so-distant future.

F. Advisory Board Perceptions

The Advisory Board met during October of 2005. The meeting was attended in person by three community sonographers, one sonographer via teleconference, the Program Coordinator, Clinical Coordinator, Dean and Department Head of the DMS program. At this time, an Advisory Board Survey was not completed.

During the 2005 meeting, the following recommendations for the DMS program were brought forward by committee members:

Recommendation:	**Action:**
To add a vascular certificate to the DMS curriculum.	Once the program is accredited, a vascular certificate will be added. Basic venous doppler scanning has been added to the Sono 130 class
Recommendation:	**Action:**
Change the sequencing of the clinical masteries due the first semester of the internship year.	DMS faculty changed the sequencing of the first semester mastery competencies to improve learning at the internship site.

Recommendation: Provide a benefit to the adjunct clinical instructors for teaching DMS students.	**Action:** Free SDMS CME's were offered during the alumni return day seminar. Free physic board review is offered annually for staff who wish to take board registry exams for additional credentials. Clinical instructor training is being offered for CME credit during summer of 2006.
Recommendation: Accredit the program.	**Action:** The DMS program will complete the JRC-DMS self-study Fall of 2006.

The support of the Ferris DMS Advisory Board has always been very positive. Faculty have heard numerous accolades from this group regarding program development and improvement since 2003.

Many of the members of the Advisory Board are also our current Adjunct Clinical Instructors. The ACI's did complete a survey of the program, which may be beneficial to the perceptions of the members of the Advisory Board. During winter semester of 2006, 12 of 18 instructors replied.

The following are the results of the ACI survey; scores were based on a 1-4 scale: 1=poor, 2=below expectations, 3=acceptable, 4=good, 5=excellent. The ACI survey is found in Appendix F.

Adjunct Clinical Instructor Survey

Question 1. The current curriculum meets the need of our graduating students.	**Date assessed-** winter semester 2006	**Average score:** 4.58	**Action Plan:** Continual updating and assessment of DMS curriculum.
Question 2. The program provides students with the necessary skills for entering the job market.	**Date assessed-** winter semester 2006	**Average score:** 4.58	**Action Plan:** Continual updating and assessment of DMS curriculum.
Question 3. The program meets the current trends in Sonography.	**Date assessed-** winter semester 2006	**Average score:** 4.58	**Action Plan:** Continual updating and assessment of DMS curriculum.
Question 4. The program is continually reviewed and improved to keep up with changes in the field.	**Date assessed-** winter semester 2006	**Average score:** 4.4	**Action Plan:** Faculty are attending National Ultrasound Conference to update their knowledge.
Question 5. Students have a strong understanding of sonography concepts upon graduation.	**Date assessed-** winter semester 2006	**Average score:** 4.75	**Action Plan:** Continue to prep students for registry review exams.

Question 6. Equipment in labs is representative of equipment being used in the clinical environment.	**Date assessed-** winter semester 2006	**Average score**: 4.3	**Action Plan:** Continue to look for alternative funding for equipment.
Question 7. Students and sites display enthusiasm for the program.	**Date assessed-** winter semester 2006	**Average score:** 4.6	**Action Plan:** Continue building a program that fosters respect in the medical community.
Question 8. The advisory board is utilized appropriately for input on program improvement.	**Date assessed-** winter semester 2006	**Average score**: 3.7	**Action Plan:** Increase enthusiasm and input from the advisory board.
Question 9. There is appropriate communication between the program and communities of interest.	**Date assessed-** winter semester 2006	**Average score:**3.6	**Action Plan:** Continue to build goodwill and community buy-in for the program.
Question 10. The faculty is meeting the needs of the students.	**Date assessed-** winter semester 2006	**Average score**: 4.3	**Action Plan:** Current program revisions will improve meeting the needs of the students.

Discussion

The overall feeling from the adjunct clinical instructors is positive and above average. The program is concerned with the results from items 8 and 9. The current Advisory Board has shown dissatisfaction at the speed at which change occurs within the program. Program revisions discussed during the advisory board meeting in May 2005 will not be effective on campus until fall of 2007. Sometimes, this is viewed as lack of commitment when the program is working within the parameters of the University system. This disconnect in the way business and academia work is sometimes hard to overcome for clinical practitioners. The program is currently looking at replacing committee members who do not attend meetings and appointing a smaller advisory board that is more committed.

The disconnect between the Ferris DMS program and community members was a big problem during the first two years with this program. Current faculty perform two clinical site visits per student each semester, as well as being involved in local, state, and national sonography associations. Faculty will continue to build goodwill in the community, as well as improve the communication with these entities. The DMS program will continue to develop and utilize an Advisory Board for program assessment.

Section 3: Program Profile

The Administrative Review is found in Appendix G.

A. PROFILE STUDENTS

Ferris State University
APR 01-05 Enrollment by Sex and Ethnicity
AHS
Diagnostic Medical Sonography

Student Enrollment

		Sex		Ethnicity							Enrollment	
Term	Enrolled	Male	Female	Blank	Black	Hispanic	Indian/ Alaskan	Asian/Pac Islander	White	Foreign	Full-Time	Part-Time
2001F	25	0	25	0	1	0	0	1	23	0	18	7
2002F	41	0	41	1	1	1	0	1	37	0	32	9
2003F	36	1	35	3	0	1	0	0	32	0	27	9
2004F	33	1	32	1	0	0	0	0	32	0	22	11
2005F	30	0	30	1	1	0	0	0	28	0	19	11

Student Enrollment

	Residency				Age	FSU GPA			ACT		
Term	Blank	Midwest Compact	Non-Resident	Resident	Avg. Age	Avg. GPA	Min. GPA	Max. GPA	Avg. ACT	Min. ACT	Max. ACT
2001F	0	0	0	25	23.5	2.972	2.262	3.618	19.2	14	25
2002F	0	0	0	41	22.5	3.162	2.261	3.99	20.7	15	29
2003F	0	0	0	36	24.5	3.449	2.506	4	20.8	13	29
2004F	0	0	0	33	29.2	3.507	2.124	4	21.2	18	26
2005F	0	0	1	29	28.8	3.312	2.432	3.968	18.6	13	25

Ferris State University
APR Enrolled/Graduated 01-06
AHS
Diagnostic Medical Sonography

Graduated Students

	FSU GPA			ACT		
Year	Avg. GPA	Min. GPA	Max. GPA	Avg. ACT	Min. ACT	Max. ACT
2002-2003	3.394	2.788	3.834	20.4	15	28
2003-2004	3.517	2.973	4	19.2	13	28
2004-2005	3.652	3.003	3.935	22.6	16	29
2005-2006	3.528	3.536	3.888	20	17	23

1. Student demographic profile

a. Gender, race/ethnicity and age. The profession of a sonographer has typically been held by women. The trend in the current student population simply reflects that trend. There have been two males enrolled in the program from 2001-2005 and there are two male students joining the 2006-2007 cohort this

fall. The male to female ratio in a cohort does not impact the curriculum, delivery or scheduling of the program.

Between the years of 2001-2005, 7.2% of DMS students reported non-white ethnic heritage. The ethnic make-up up each cohort does not impact the curriculum, delivery or scheduling of the program courses.

The average age of students in the DMS program ranges from 22.8 -29.2 years between the years 2001 and 2005. Higher entrance requirements and pre-requisite courses prevent true freshman from entering the program from high school. The prerequisite courses have been implemented not to discourage first year students but to assure a better prepared student for the program and minimize attrition rates. The prerequisite courses are also mandatory for programmatic accreditation.

b. In-state/out-of-state. The DMS program had one out-of-state student enrolled in the program since its inception. The internship portion of the program appeals to in-state students more than out-of-state students because of the requirement to be placed within 500 hundred miles of Big Rapids. Whether students are in-state or out-of-state does not impact the curriculum, scheduling or delivery of the program.

c. Full-time and part-time. 71.5% of DMS students are full time students and 28.5% of students have been part time students since the inception of this program. Whether students are full time or part time does not effect the curriculum, delivery, or scheduling of the program.

d. What percentage of students attend classes in the day, evenings, and week-ends? The first year professional sequence classes in the sonography program are held during the day on Monday through Friday on the Big Rapids campus. The SLA component to Sono 101 is the only section held in the evening. Second year professional sequence student attend internship and complete distance learning through Web CT. Second year DMS students have the choice to attend core curriculum courses of CCHS 101, CCHS 102, and MRIS 102 either on-line, in person, or at an off campus location.

e. Enrolled in classes on and off campus. The first year students take all of their lock-step classes together on the Big Rapids campus of Ferris State University. DMS students have the choice to attend core curriculum courses of CCHS 101, CCHS 102, and MRIS 102 either on-line, in person, or at an off campus location. Second year professional sequence classes are held 100% on-line while the students attend their internships off campus.

f. Enrolled in 100% on-line and/or mixed delivery courses. First year professional sequence sonography students have all of their courses supplemented through Web CT so they can access lecture materials, grade book, program policies, and practice materials from home. DMS students have the choice to attend core curriculum courses of CCHS 101, CCHS 102, and MRIS 102 either

on-line, in person, or at an off campus location. Second year professional sequence students attend their didactic courses 100% on-line while they attend internships. The use of Web CT has improved how the program can deliver and prepare the students for daily lecture. The DMS program has been able to cover material more thoroughly using Web CT enhancement and students are able to receive immediate remediation of difficult material.

2. Quality of students

a. What is the range and average GPA of all students currently enrolled in the program? ACT? The minimum GPA for students currently enrolled in the DMS program is 2.43 and the maximum GPA is 3.965. The average GPA of DMS students is currently 3.312. The minimum GPA to enter the DMS program is a 2.5 college GPA and students must pass all courses with a C or better for graduation requirements. DMS students are very well prepared and consistently do well academically. The lowest ACT score of the current cohort is a 13, with an average of 18.6, and a high of 25.

The DMS program implemented higher entrance requirements into the program effective fall of 2005, these requirements include:

- Math ACT score of 24 or a "C" or better in Math 115.
- Science reasoning ACT score of 21 or a "C" or better in a college level lab science course.
- High school GPA of 3.0 or college GPA of 2.5.

b. What are the range and average GPA's of students graduating from the program? ACT? The average GPA range in the DMS program was 3.39 – 3.65 The average ACT scores of graduates are in an average range of 19.2 – 22.6 2.5.

The DMS program has very well prepared students for the program because of the entrance requirements and required prerequisite courses. The dedication of students and their GPA's demonstrate a very strong academic performance.

c. In addition to ACT and GPA, identify and evaluate measures that are used to assess the quality of students entering the program. In addition to ACT and GPA scores, students entering the program must pass Physics 130, MRIS 102 Medical Terminology, and BIO 109 Anatomy & Physiology courses with a "C" or better as prerequisites courses before entering the professional sequence. These courses better prepare students for program courses, as well as fulfill requirements set forth by the JRC DMS for programmatic accreditation standards.

d. Identify academic awards students in the program have earned. At this time there are no state or regional DMS student competitions. Students do not

compete in national ultrasound competitions due to proximity from campus. This does not impact the curriculum in a negative way. Students continue to complete poster and case study presentations on campus.

e. What scholarly activities do DMS students participate in? Ferris State University DMS students attend an annual alumni return day to hear speakers in the field of ultrasound speak on new techniques. DMS students also have the opportunity to attend the West Michigan Sonographers' Society seminars in Grand Rapids. Six DMS students regularly attended these educational seminars during the 2005-2006 school year. DMS faculty highly recommend that students attend state and regional ultrasound meetings. Ideas discussed in these meeting are often discussed in the classroom to benefit the students who are unable to attend. This participation is significant because it provides an opportunity for students to gain a sense of community within their profession and update their knowledge in current technologies.

f. What are other accomplishments of students in the program? Students in the DMS program are routinely on the honor roll. Each cohort completes one community service project for a charity of their choice.

3. Employability of students

2003-2004 Graduate survey follow-up for from FSU Institutional Research

Program	Certificate	A.S.	B.S.	Response rate	Percentage	Average salary
DMS	0	21	0	70%	100%	$38,733

a. How many graduates have become employed full time in the field within 1 year of receiving their degree? The 2003-2004 Graduate survey reports DMS graduates enjoy a one hundred percent employment rate in diagnostic medical sonography.

b. What is the average starting salary of graduates who become employed full-time in the field since the inception of the program? Average pay of graduates of the program are reported at $ 38,733. The DMS program has three cohorts of graduates to survey.

The following grid compares average salaries reported by Ferris Graduates, SDMS (Society for Diagnostic Medical Sonographers) in Michigan, and the national average salary.

FSU reported average salaries	SDMS reported average Michigan salaries: (2005)	National average salaries: (2005)
$38,733	$40,000-49,000 Department of Labor mean for the State of Michigan $51,950	$50,00-59,000

Average salaries do not account for years of experience or whether a sonographer is credentialed. Due to our non accreditation status, DMS graduates must work one year after graduation before they are eligible to write their boards. Typically an employer will pay a higher salary for a credentialed sonographer, although it is not mandated by law in the state of Michigan. Ferris DMS graduates are not significantly below the state average with very little experience behind them.

c. How many graduates have become employed as part time or temporary workers in the field within one year of graduating from the program? The DMS program did not track part time and temporary status of graduates in the field.

d. Describe the career assistance available to students? Career assistance is provided by the staff of the DMS program. Both faculty members have a solid career with many community ties that keep them apprised of job openings. Over fifty percent of the graduates are hired at their clinical affiliates. There have been several instances where positions have been created at the internship site so graduates could be employed after graduation. Involvement with the Michigan Sonographers' Society also keeps students and staff apprised of sonography openings in the state. Nationwide there is a large shortage of sonographers. A graduate can find hundreds of job openings across the United States. Ferris DMS graduates are currently working throughout the state in addition to New York, Florida, Hawaii, Indiana, Ohio, Illinois, and Virginia. If students are willing to intern in the Upper Peninsula of Michigan, guaranteed jobs at graduation are available. Ferris students attend university sponsored career fairs and use the employment office for resources as well as interviewing and resume writing training.

What is the perception of career assistance? The students reported an average to above average rating on the career assistance given to them by the DMS program in the graduate surveys.

If students want additional training in ultrasound after graduation, they can be cross trained on-site. Cross training is the traditional way sonographers obtain additional experience in ultrasound. If a graduate would like to earn a higher degree, they will pursue a degree in Health Care Systems Administration from Ferris. Many students will start their bachelors program before their associate program in DMS because of the two-three year wait into the DMS program.

This inverted BS degree program improves management and organizational skills of the practicing sonographer. Currently, sixty percent of the professional cohort DMS students are dual enrolled.

e. How many graduates continue to be employed in the field? All graduates were surveyed during the winter of 2005. We do not have another set of data to compare a change of employment status over time. The employability of DMS graduates was at one hundred percent when surveyed.

f. Describe and comment on the geographical distribution of the employed graduates. Ferris DMS graduates are currently working throughout the state of Michigan and in New York, Florida, Hawaii, Indiana, Ohio, Illinois, and Virginia. If students are willing to intern in the Upper Peninsula of Michigan, guaranteed jobs at graduation are available. There is a documented national shortage of diagnostic medical sonographers. Many graduates secure employment more easily with a higher salary out of state than in the state of Michigan. Michigan is also a state that does not require licensure to perform ultrasound. Ferris graduates are even more employable in states that require licensed technologists.

g. How many students and /or graduates go on for additional training? Sixty percent of 2005 DMS graduates are also pursuing a Bachelor of Science degree in Healthcare Systems Administration. Graduates who want to learn extra modalities in ultrasound generally learn them on the job after several years of general ultrasound experience. FSU graduates have not been in the workforce long enough to qualify for this type of additional training.

h. Where do most ultrasound graduates obtain their additional educational training? FSU graduates are obtaining their additional training in ultrasound on the job by cross training. Cross training is the method specialized ultrasound modalities have always been taught. The advent of ultrasound degrees is a relatively new movement brought forth by the ARDMS. The ARDMS requires an A.S. degree to sit for the credentialing exam. Once a graduate earns one ARDMS credentials, he can cross train in any additional modality with no additional schooling. There are very few certificate programs in the state for graduates interested in pursuing career advancement through formal education.

B. ENROLLMENT

1. What is the anticipated fall enrollment in the program? The anticipated fall enrollment for the professional sequence of the DMS program is twenty students. Currently eighteen students have registered for the fall semester and two are registered for transfer student orientation later this summer.

2. Have enrollment and student hour production increased or decreased since program inception? Professional sequence program enrollment has decreased since the start of

the program. The original cap was set at twenty-four students but it was very difficult, if not impossible, to find enough internship sites for twenty-four students. The shortage of faculty positions also impacted this decision. The site visit by JRC-DMS site visitor, Kerry Weinburg, recommended that the sonography program not accept more than twenty students. The DMS program maintains full enrollment entering the professional sequence courses. The decrease in student numbers resulted in a decrease of SCH.

Overall program enrollment including Pre-DMS majors has fluctuated. The following grid shows the trend:

2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
25	41	36	33	30

The two-three year waitlist and the number of advisees indicates that the number of Pre-DMS majors are much higher than these numbers indicate. Many pre-DMS majors are dual enrolled in a bachelor of science degree program and therefore do not reflect in the pre-DMS numbers. There are fifty students on the DMS quota waitlist with many more attending Ferris earning their entrance requirements.

3. Since the inception of the program how many students apply to the program annually?

The numbers provided by Institutional Research reflect the academic year 2004 and 2005.

The following is a table of applications for the DMS program:

Number of applications received	Number of offers accepted	Number of students enrolled
2004 61 2005 70	2004 36 2004 34	2004 33 2005 data not available

Sixty one students applied to the DMS program in 2006 and seventy students applied in 2005.

4. Of those students who apply to the program what percentage are being admitted?
In 2004, fifty-nine percent of the students applying to the program were admitted to the university. In 2005, 48.5% of students applying to the program were admitted to the university.

5. Of those who are admitted how many and what percentage enroll? The 2004 data

reflects that 91.6% of students accepted into the university actually enrolled at Ferris. The numbers for enrollment for 2005 were not available at the time of this report. Program specific data is not available.

6. What are the programs current program enrollment goals, strategy, and efforts to maintain, increase, decrease the number of students in the program? The enrollment goal for the DMS program is to enter twenty students into the professional sequence each year. The DMS program has added twenty or more students into the DMS professional sequence each of the previous four years. The DMS program currently has a two-three year wait list for the program. The goal for the DMS program at this time is to maintain the two-three year waitlist and keep students on campus by recommending that students matriculate through an inverted bachelor degree program in HCSA, CIS, or Applied Science.

C. PROGRAM CAPACITY

1. What is the appropriate program enrollment capacity, given the availability of faculty, physical resources, funding accreditation requirements, state and federal regulations, and other factors? Which of these items limits program enrollment capacity? Current enrollment in the professional sequence of the DMS program is twenty students. Twenty students is also the capacity of the program. The following are reasons why the capacity is set at twenty and cannot be increased at this time:

   - Limited lab size and equipment available.
   - Faculty to student ratio necessary so students receive adequate instruction to develop sound scanning techniques.
   - A limited number of internship sites.
   - JRC-DMS accreditation recommendations.

D. RETENTION AND GRADUATION

1. Give the annual attrition rate in the program. The attrition rate for the program in the last three years is as follows:

2003-2004 attrition	**2004-2005 attrition**	**2005-2006 attrition**
11% 4 students left the program 1 army deployment 2 lack of academic progression 1 did not like healthcare	**10%** 4 students left the program 3 lack of progression 1 did not liking being in a hospital *1 student reentered from a previous cohort	**8.4%** 3 students left the program 1 pregnancy 1 lack of academic progression 1 medical leave * students reentered from a previous cohort

2. What are the current goals, strategy and efforts to retain students in the program? DMS is a skills based curriculum and students must pass basic mastery level competencies before leaving a lab or clinical internship course. Although the DMS program spends a lot of time remediating students, some students can not demonstrate the skills necessary to be a sonographer. Faculty continue to improve their teaching and assessment skills to better prepare the students for both clinical and didactic testing. The following are examples of how faculty will improve retention rates:

Improve Faculty skills

- Earning Master of Science degrees in Education.
- Attending faculty transition and continuing education seminars on teaching techniques.
- Responding to course assessment surveys, SAI's, and students surveys pertaining to teaching techniques.
- Attending the educator's tutorial sponsored by the SDMS for sonography educators.
- Implementing innovative teaching techniques.

Respond to student and graduate assessment of teaching

- Change teaching approaches based on course assessments, SAI's, students surveys, and testing scores.
- Implement approved program changes during fall of 2007.
- Program changes implemented fall of 2005 have improved the entrance standards to the program.
- SLA for the physics course has greatly improved the attrition rate for this historically difficult sonography class (no physics attributed attrition in 2005).

3. Describe and assess trends in number of degrees awarded in the program. Graduation rates for the DMS program are as follows:

FSU DMS graduation rates

2002-2003	2003-2004	2004-2005	2005-2006	
13	21	13	15	Per university numbers
16	21	16	16	*Per program numbers

* DMS students that graduate with a dual Bachelor of Science degree in Health Care Systems Administration are not reflected in the Associate of Science DMS graduation rate or numbers.

Graduation rates are consistently averaging eighty percent or better. Increased entrance requirements and prerequisite courses implemented with the 2005-2007 cohort should maintain this trend.

4. How many students who enroll in the program graduate from it within the prescribed amount of time? Between sixty-five and seventy-five percent of students will graduate from the DMS program within two years of starting their professional sequence classes.

   Students entering Ferris State University as a first year college student often remain on a two-three year waitlist for the professional sequence of the program. During this time
   period, students can complete the general education and prerequisite courses of the degree program. Prerequisite course are required by the JRC-DMS for programmatic accreditation. Most students require three years to complete the prerequisite courses and professional sequence courses.

5. On average how long does it take for a student to graduate form the program? Students entering the professional sequence follow a lock step program with little room for variance. Typically students graduate two years after starting their professional sequence or do not graduate at all with a degree in DMS.

E. ACCESS

1. Describe and assess the programs actions to make itself accessible to students.
   The DMS program is a lock step program in which each cohort starts together and completes every course together for two successive years. This sequence is essential because of the limited number of faculty and the necessity to keep the interns on the same cycle for assessment. Off site courses and accelerated courses are not offered because of this curriculum model. On campus didactic courses are supplemented with Web CT for flexible learning of material. During the second year of the program, courses are one hundred percent online to provide flexibility for the student interns. The SLA component of sonography courses are offered during the evening hours. Open lab sessions are offered evenings and weekends.

2. Discuss what effects the action described in 1 has on the program.
   Program visibility – On campus scanning labs set the FSU DMS program apart from other programs in the state. It is not as flexible as using hospital labs but better prepares the ultrasound student.
   Enrollment, market share – Students choose Ferris because of our unique lab learning design.
   Faculty load – No impact on teaching load of faculty.
   Computer resource – On campus students have access to the library, computer labs, and imaging simulators on campus.

3. How do the actions described in #1 advance or hinder program goals and priorities.
   The use of Web CT to facilitate student learning has enhanced the learning process for students. It also provided the opportunity for efficient time management thus providing the opportunity to enhance content in the classroom. The use of on campus labs supports the program goal of producing competent entry-level

sonographers. The limited flexibility in student course meeting time does not hinder the program.

F. CURRICULUM

1. Program requirements

   a. The following is a table reflecting classes required in the DMS program and the benefit of each course:

   *This is the curriculum currently in place at the time of this program review.

   As a result of assessing the DMS program, a curriculum clean up was implemented and will be effective fall of 2007. The new curriculum will not have directed cultural enrichment or social awareness courses. Program checklists are found in Appendix I.

Courses in the DMS Program	Rational for courses
English 150 *prerequisite to enter the DMS professional sequences prescribed by JRC DMS starting Fall 2007	Communication competence * accreditation standard
English 250	Communication competence *accreditation standard
Comm. 105, 120, or 221	Communication competence *accreditation standard
Biol 109 *prerequisite to enter the DMS professional sequences prescribed by JRC DMS	Scientific understanding Basic anatomy & physiology is essential to learning cross sectional anatomy and interpreting ultrasound images.
Physics 130 *prerequisite to enter the DMS professional sequences prescribed by JRC DMS	Scientific understanding *Requirement for accreditation Sonographers must pass a physics board in order to earn their ultrasound credentials. Basic physics understanding is required.
Psychology * the program revision effective 2007 does not prescribe which social awareness class to be taken	Social awareness FSU associate degree standard
Humanities 220 or 320 * the program revision effective 2007 does not prescribe which cultural enrichment class to be taken	Cultural enrichment Medical ethics is a vital part of the healthcare profession.

CCHS 101 Orientation to Healthcare	CAHS Core Requirement Students are introduced to the healthcare system
CCHS 102 Safety Issues in Healthcare	CAHS Core Requirement Students are introduced and reflect upon issues affecting healthcare.
CCHS 103 Clinical skills	CAHS Core Requirement Students learn the basic skills they need as a clinical practitioner.
MRIS 210 Fundamentals of Medical Science	A pathophysiology course teaching students about body systems and disease process. * Will be dropped from the program due to duplication of material in Sono 110 in fall of 2007
MRIS 102 Medical Terminology * students can take the course or show competency	*Requirement for accreditation
Math 115 Intermediate Algebra * students must take the course or have a math ACT score of 24	Math Competency *Requirement for accreditation Program revision of 2005 established Math 115 as a requirement to begin the program or student must have a Math ACT score of 24. This has limited matriculation into the professional sequence of the program to students that have a realistic chance of progression.

b. There are no hidden courses in the curriculum.

2. Has the program significantly revised it's curriculum since last review, if so how?

The DMS program underwent 2 program revisions since the program inception in 2001. The first revision was effective starting fall of 2005 and included:

- Increased entrance requirements for better student preparedness and improved attrition rates.
- Established physics and anatomy & physiology as prerequisite courses.

The second program revision was in response to assessment learned through this program review process. The following changes will be implemented fall of 2007:

- Lab courses separated into a separate didactic course and a separate lab skills course.
- Internships separated into a separate didactic course and a separate skills mastery course for improved assessment.
- English 150 added as a prerequisite course per JRC-DMS standards.
- Removed duplicated pedagogy from the curriculum.

- Implemented two critical thinking courses into the curriculum.
- Separated small parts and neonatal scanning from previous courses and created new courses to better address these learning outcomes.

Current and new Sonography checklists are found in Appendix I. Examples of Sonography Syllabi are found in Appendix J.

3. Are their any program changes currently in the review process? No

4. What are the plans to revise the program in the next 3-5 years? In the next 3-5 years, the DMS program plans a continuous assessment of these courses to monitor student success and obtainment of outcomes. Once the program is accredited, it will consider the addition of a vascular certificate to the program.

G. QUALITY OF INSTRUCTION

1. Discuss student and alumni perception about quality of instruction.

Below are the **student** questionnaire results regarding quality of instruction. This form can be found in appendix D.

On a 1-5 Likert scale, the average score for each are were:

1= strongly disagree, 2=generally disagree, 3= neutral; 4= generally agree, and 5 strongly agree

Question Faculty:	2005 Average Score
Teach effectively in the classroom	4.38
Teach effectively in the laboratory	4.3
Teach effectively in the clinical area	4.46
Faculty members are willing to help students with academic needs	4.28

Discussion
Students rate the quality of instruction in the DMS program very high. As program faculty continue to improve their teaching skills, better scores are projected in the future.

Diagnostic Medical Sonography

APRC 2006-2007

Section 2 of 2

Graduate assessment of instruction – The following scores regarding instruction on campus are from a 1-5 Likert scale. The following survey is found in Appendix A.

1= strongly disagree, 2=generally disagree, 3= neutral; 4= generally agree, and 5 strongly agree

Question Faculty:	2005 Average Score
Helped me acquire the sonography care knowledge necessary to function in a healthcare setting.	4.5
Helped me acquire the general knowledge base necessary to function in the healthcare setting.	4.0
Prepared me to interpret data.	3.5
Prepared me to evaluate diagnostic findings in order to perform appropriate diagnostic procedures.	3.9
Trained me to use sound judgment while functioning in a healthcare setting.	3.9

Discussion
Graduates report favorable scores for the assessment of teaching. Faculty were particularly concerned with item 3 on the assessment "prepared to interpret data". The implementation of Sonography Interpretation I and II should address those skills much more thoroughly. With the implementation of the new curriculum and improved methods of instruction, the program faculty are confident these scores will continue to improve.

2. Discuss advisory board and employer perceptions of the quality of instruction.
The hospitals and clinics that employ Ferris DMS graduates are very pleased with the DMS program. One hundred percent of employers surveyed noted that Ferris graduates were very well prepared for the entry level sonographer position.
The Employer Survey is found in Appendix B.

The following is a summary of the employer survey results. On a 1-5 Likert scale, the average score for each are were:

1= strongly disagree, 2=generally disagree, 3= neutral; 4= generally agree, and 5 strongly agree

EMPLOYER FEEDBACK MATRIX

#	EVALUATION INSTRUMENT	LEARNING DOMAIN	DATE (S) OF MEASUREMENT	RESULTS – ANALYSIS (COMPOSITE SUMMARY)	ACTION PLAN
1	EMPLOYER SURVEY	**Cognitive Domain** knowledge base of the graduate	2-2006 8 months after graduation	4.94	A yearly physics board review is offered to improve retention of physics principles.
2	EMPLOYER SURVEY	**Psychomotor Domain** clinical proficiency of the graduate	2-2006 8 months after graduation	4.86	New scanning techniques will be monitored and ergonomics will continue to be stressed within the curriculum.
3	EMPLOYER SURVEY	**Affective Domain** behavior skills of the graduate	2-2006 8 months after graduation	4.94	Continuous role playing on campus and sonography behavioral trait monitoring in all courses.

The Ferris DMS program is committed to providing relevant and exemplary employees to the health care community. The DMS program consults employers and adjunct clinical facilities both formally and informally several times throughout the year.

The DMS advisory board has also been very pleased with the DMS program. All advisory board respondents were very happy with program improvements.

3. What departmental and individual efforts have been made to improve the learning environment, add and use additional appropriate technology, train and increase the number of undergraduate assistants? Many of the class rooms in the VFS building are being updated during the summer of 2006. This update will greatly improve the learning environment of the DMS students. The DMS program continues to apply for grant funding for specialized equipment, as well as solicit in kind donations from community hospitals. The DMS program does not use undergraduates to teach or assist with lab.

4. Describe the types of professional development faculty have participated in, in efforts to enhance the learning environment. The following lists the instructional development of current program faculty:

Michelle Weemaes, Program Coordinator

2003-2004 Attended faculty transition program sessions monthly
Attended Lilly west conference for teaching
Attended SDSM national ultrasound conference for teaching
Started Master Degree program courses in ECTE at FSU

2004-2005 Continued taking masters degree classes in ECTE
Attended seminar on learning centered instruction
Incorporated Web CT into all Sonography classes

2005-2006 Attended conference for first year students and the American Democracy Project
Attended the ARRT standard setting meeting for a primary credentialing exam in sonography
Continued taking masters degree classes in ECTE
Attended 3 day assessment seminar by FSU the faculty center for learning and development

The DMS faculty are planning on attending the 2006 SDMS conference all day tutorial for educators this fall.

Sonya Knoll, Clinical Coordinator

2005-2006 Started Master Degree program courses in ECTE at FSU
Attended faculty transition program before faculty week
Attended 3 day assessment seminar by FSU Faculty Center for Learning and Development

Although the faculty members are relatively new to academia, both are dedicated to the profession of ultrasound and quality teaching.

5. What efforts have been made to increase the interaction of students with faculty and peers? The faculty interact with program students very effectively. In addition to class and lab hours, faculty hold voluntary open labs for 4-6 hours a week to provide additional scan experience. Faculty have attended alumni return day activities, West Michigan Sonographer Society meetings, and CAHS Hockey night with students.

6. Discuss to which current research and practice regarding inclusive pedagogy and curriculum infuse teaching and learning in this program. Faculty members subscribe to the outcomes based learning model for teaching courses. Students have to know the material, use and interpret the material, and demonstrate the knowledge learned through mastery based exams.

H. COMPOSITION AND QUALITY OF FACULTY

1. a-c List the names of all tenured track faculty by rank
Program Coordinator, Michelle Weemaes B.S. RDMS, RVT
On staff since fall 2003

Instructor level
Ms. Weemaes earned her Bachelor of Science Degree at Ferris State University, an Associate of Science Degree in Diagnostic Medical Sonography from Jackson Community College.
She has been ARDMS registered since 1999 in Abdomen and advanced modality Vascular Technology
Before coming to Ferris State University, Ms. Weemaes was an adjunct clinical instructor for Jackson Community College's Ultrasound Program for 2 years.
Ms. Weemaes was also the Technical Director for a Vascular Surgeon group housing 8 surgeons in 3 offices. During that employment, she successfully accredited those labs through ICAVL

Professional organizations:
Current Member of national ultrasound organization SDMS
Current ARDMS member in good standing
Current ARRT standard setting committee member for primary DMS credentialing exam
2 time Alumni Return Day speaker 3-2004 and 3-2005
Attended national SDMS conference 10-2004
Attended OB/GYN symposium in Toledo 2-2005
Attended Michigan Sonographer Association symposium 5-2005
Speaker at FSU Outcomes Assessment fair 5-2005
*Will be poster presenter at 2005 Lilly North Conference

Not eligible for promotion or merit due to length of service and degree

Clinical Coordinator, Sonya Knoll B.A.S., RDMS
On staff since fall 2005

Instructor level
Ms. Knoll earned her B.A.S. degree at Siena Heights, and her Associates in Diagnostic Medical Sonography at Marygrove College.
Sonya has been ARDMS registered since 1990 in Abdomen, Ob, and Advanced Modality Breast
Before coming to Ferris State University, Ms. .Knoll was an adjunct clinical instructor for Oakland Community Colleges, Diagnostic Medical Sonography Program.
Ms. Knoll has come to Ferris State University with 17 years of clinical ultrasound experience.

Professional organizations:
Current Michigan Sonographer Society member
Current ARDMS member in good standing
Attended Michigan Sonographer Association symposium 5-2005

Not eligible for promotion or merit due to length of service and degree

2. Workload Annualized workload is either 24 credit hours or 36 contact hours. The DMS faculty load is determined by contact hours because of the lab intensive curriculum.

Since the first tenure track faculty was hired in the program, faculty and load has looked like this:

Year	Faculty Position	Load	Reason
2003-2004	Tenure Track Program Coordinator	Overload	Only person with faculty responsibilities
2003-2004	Adjunct Clinical Coordinator	No overload	
2004-2005	TT Program Coordinator	Overload	Only program faculty
2005-2006	TT Program Coordinator	Overload	By choice
2005-2006	TT Clinical Coordinator	Overload	By choice

Program faculty are given release time for both Program and Clinical Coordination.

3. Recruitment

a. What is the normal recruiting process?
Recruiting activities included metropolitan newspaper advertisements, trade magazine advertisements, and a professional recruiter for several hard to fill Allied Health positions, including the DMS position.

b. What qualifications are typically required for new faculty?
New faculty requirements include: 2 years of ultrasound experience
Appropriate ARDMS credentials
A minimum of a Bachelors Degree
*Masters Degree Preferred
prior teaching experience

c. What are the programs diversity goals for both gender and ethnicity in the faculty?
The program does not have a goal for gender or mix of ethnic backgrounds. The best qualified applicant who meets the hiring standard will be employed.

d. Describe and assess the efforts being made to attain goals in C.
The DMS program is currently fully staffed and not seeking a faculty member at this time. The best qualified applicants will be sought out regardless of gender or ethnic background.

4. Orientation
New Faculty attend the faculty transition program. New faculty also select a tenure committee chair who act as a mentor to the employee for the first 4 years. Additional CAHS orientation seminars and "monthly best practices seminars" are being discussed for the 2006-2007 school year.

5. Reward structure

Formatted: Bullets and Numbering

a. Describe the reward structure in the program/department/college as it relates to program faculty. In addition to salary, the faculty are rewarded with departmental and college funds to offset travel to professional meetings. Faculty are encouraged to apply through the Faculty Affairs Committee for CAHS funding. The reward is limited to $500 for faculty member per year. Faculty members are also encouraged to apply for Timme funding. Departmental incentive funds have been available on a limited basis to offset the cost of travel for professional development.

b. Does the existing salary structure have an impact on the programs ability to attract and retain faculty? Yes it does. The qualifications and experience needed for an applicant to be eligible to teach will place them in the high end of the pay structure at a healthcare facility. Sonographers who have advanced degrees (beyond an associate in the field of DMS) and sonographers holding more than one credential earn considerably more in the healthcare facility. The following information is provided by the Society of Diagnostic Medical Sonography(SDMS):

- Only 2.9% of all sonographers hold a masters degree
- 58% of those with masters degrees are earning between $65,000 and $100,000.

The following is a quote from the American Registry for Diagnostic Medical Sonographers:

How much do sonographers make?
A 2005 Society of Diagnostic Medical Sonography (SDMS) Sonographer Salary and Benefits Survey found that the median salary figure for sonographers is $61,984. The median hourly pay rate for a sonographer is $29. Almost eighty-one percent of survey respondents indicated that they get paid by the hour. Over fifty-six percent of survey respondents reported that they do NOT take on-call time.

The previous salary quote is based on the median salary of all sonographers and the FSU DMS program is recruiting to the top 2.9% of sonographers.

c. Is the reward structure currently in place adequate to support faculty productivity in teaching research, and service? The reward structure to support faculty productivity in teaching, service, and research is in place. Promotion and Merit is based on these items.

d. Is enhancing diversity and inclusion part of the reward structure? No

6. Graduate Instruction
a-d. There are no graduate programs within the DHMI Department.

7. Non-Tenure Track and Adjunct Faculty

a. Please provide a list for the last academic year of full-time non-tenure track and adjunct faculty who taught in the program. The DMS program does not have or need to use adjunct faculty. The program does not support any full-time non-tenure track positions.

b. What percentage of program courses are taught by the faculty in a year? One hundred percent of DMS courses are taught by tenure track program faculty. What courses are they teaching?

During the 2005-2006 school year, program load was divided as such:

Sono 100	Program Coordinator
Sono 101	Program Coordinator
Sono 110	Program Coordinator
Sono 115	Clinical Coordinator
Sono 120	Clinical Coordinator
Sono 130	Program Coordinator
Sono 291	Web Ct portion was Co-taught
Sono 292	Web Ct portion was Co-taught
Sono 293	Clinical Coordinator

c. Describe the required qualifications for faculty listed above. Indicate if faculty have met the criteria set forth. Qualifications to teach sonography courses are shown below:

- Physics courses – faculty must hold 1 current ARDMS credential demonstrating proficiency on the physics and instrumentation exam and 2 years scanning experience
- Abdominal and small parts courses – faculty must hold an ARDMS abdominal specialty registry and have 2 years ultrasound experience
- OB GYN courses – faculty must posses ARDMS OB specialty registry and have 2 years scanning experience
- Doppler/ Hemodynamics courses – faculty must have 1 current ARDMS credential, RVT credential preferred and 2 years scanning experience.
- Cross sectional anatomy and pathophysiology - faculty must have an ARDMS credential in abdomen and 2 years scanning experience.

d. Does the program consider the current use of non tenured track faculty appropriate? The use of non-tenured track faculty is only appropriate to fill part-time positions when needed but not in the place of tenure track faculty positions.

e. If the program is accredited, what position if any does it have on the use of non-tenured track and adjunct faculty. The accreditation body does not take a stance on whether a class is taught by a tenure track member or not. Appropriate credentials and experience is mandated.

I. SERVICE TO NON MAJORS

a-d. Identify and describe the general the general education service courses provided by the program faculty for other departments at FSU. The DMS program does not provide service courses to other majors.

J. DEGREE PROGRAM COST AND PRODUCTIVITY

Ferris State University
Degree Program Costing 2002- 2003 (Summer, Fall, and Winter)

College : Allied Health Sciences
Department : Health Related Programs

Program Name: Diagnostic Medical Sonography AA

Program Credits Required (Total credits to graduate) 67

*Instructor Cost per Student Credit Hour(SCH) (Average for program)	$90.40
**Department Cost per Student Credit Hour	$78.60
***Dean's Cost per Student Credit Hour	$26.98
Total Cost per Student Credit Hour (Average for program)	**$195.98**
Total Program Instructor Cost (Assumes a student will complete program in one year)	$6,056.77
Total Program Department Cost	$5,268.12
Total Program Dean's Cost	$1,807.73
Total Program Cost (Assumes a student will complete program in one year)	**$13,130.61**

Course ID	Level	Instructor Cost	Dept Cost	Dean's Cost	SCH's Produced	Instructor Cost/SCH	Dept Cost/SCH	Dean's Cost/SCH	Credits Required	Program Instructor Cost	Program Dept Cost	Program Dean's Cost
BIOL109	L	$107,227	$45,034	$8,738	1352	$79	$33	$6	4	$317	$133	$26
CCHS101	L	$110,929	$66,236	$47,705	1359	$82	$49	$35	3	$245	$146	$105
CCHS102	L	$45,033	$22,225	$16,007	456	$99	$49	$35	1	$99	$49	$35
CCHS103	L	$19,362	$14,281	$10,285	293	$66	$49	$35	1	$66	$49	$35
COMM105	L	$322,108	$57,922	$22,918	3546	$91	$16	$6	3	$273	$49	$19
ENGL150	L	$583,812	$97,248	$39,767	6153	$95	$16	$6	3	$285	$47	$19
ENGL250	L	$525,942	$81,364	$33,272	5148	$102	$16	$6	3	$306	$47	$19
HUMN220	L	$22,062	$5,439	$2,152	333	$66	$16	$6	3	$199	$49	$19
MRIS210	L	$12,187	$5,995	$4,318	123	$99	$49	$35	3	$297	$146	$105
PSYC150	L	$254,396	$82,840	$27,436	4245	$60	$20	$6	3	$180	$59	$19
SONO100	L	$2,636	$2,807	$878	25	$105	$112	$35	1	$105	$112	$35
SONO101	L	$15,814	$11,229	$3,510	100	$158	$112	$35	4	$633	$449	$140
SONO110	L	$11,653	$10,331	$3,229	92	$127	$112	$35	4	$507	$449	$140
SONO115	L	$971	$2,583	$807	23	$42	$112	$35	1	$42	$112	$35
SONO120	L	$10,978	$8,085	$2,527	72	$152	$112	$35	4	$610	$449	$140
SONO130	L	$3,659	$4,042	$1,264	36	$102	$112	$35	2	$203	$225	$70
SONO291	L	$12,300	$24,255	$7,582	216	$57	$112	$35	12	$683	$1,347	$421
SONO292	L	$18,126	$24,255	$7,582	216	$84	$112	$35	12	$1,007	$1,347	$421

* Instructor Cost - *Salary & Fringe* - the actual cost to teach a course
** Department Cost - *Departmental Level Non Instructor Compensation, Supplies and Equipment* - departmental average applied to all course prefixes within a department
*** Dean's Cost - *Dean's Level Non Instructor Compensation, Supplies and Equipment* - college average applied to all course prefixes within a college

DISCUSION

The degree program costing is relative to the equipment intensive labs, required instructor to student ratio and required lab/class size.

FERRIS STATE UNIVERSITY

Student Credit Hours (SCH), Full Time Equated Faculty (FTEF) and SCH/FTEF
Aggregated by Course Prefix within College and Department

		Student Credit Hours				Full Time Equated Faculty				SCH/FTEF			
Prefix	Year	Summer	Fall	Winter	F + W (a)	Summer	Fall	Winter	Avg F + W (b)	Summer	Fall	Winter	F + W (a / b)
College of Allied Health Sciences													
Health Related Programs													
SCNO	2003-04	141.00	350.00	330.00	680.00	0.75	2.00	2.00	2.00	187.17	175.00	165.00	340.00
Hospital Related Department													
NUCM	1999-00	82.00	505.00	443.00	948.00	1.00	2.00	2.00	2.00	82.00	252.50	221.50	474.00
OPHT	1999-00	44.00	270.00	194.00	464.00	1.00	2.95	2.42	2.68	44.00	91.61	80.17	172.90
RADI	1999-00	950.00	1,066.00	1,023.00	2,089.00	2.50	3.00	3.00	3.00	380.00	355.33	341.00	696.33
RESP	1999-00	168.00	234.00	301.00	535.00	1.00	2.00	2.00	2.00	168.00	117.00	150.50	267.50
Nursing & Dental Hygiene													
DHYG	2000-01	77.00	1,303.00	1,178.00	2,481.00	1.00	5.40	5.00	5.20	77.00	241.15	235.60	476.97
DHYG	2001-02	64.00	1,324.00	1,190.00	2,514.00	1.00	3.90	4.16	4.03	64.00	339.80	286.06	624.10
DHYG	2002-03	46.00	1,344.00	1,174.00	2,518.00	1.00	4.22	4.34	4.28	46.00	318.18	270.51	588.04
DHYG	2003-04	62.00	1,467.00	1,248.00	2,715.00	1.00	4.91	4.22	4.56	62.00	298.94	295.73	594.92
NURS	2000-01	351.00	1,143.00	1,029.00	2,172.00	2.48	9.46	8.92	9.19	141.53	120.87	115.36	236.39
NURS	2001-02	551.00	1,370.00	1,292.00	2,662.00	4.00	9.48	8.68	9.08	137.75	144.53	148.87	293.20
NURS	2002-03	598.00	1,271.00	1,310.00	2,581.00	4.76	8.30	9.72	9.01	125.61	153.13	134.88	286.49
NURS	2003-04	566.00	1,633.00	1,710.00	3,343.00	1.64	10.69	12.50	11.59	222.78	152.83	136.82	288.40
Nursing Department													
NURS	1999-00	574.00	1,855.00	1,499.00	3,354.00	4.37	12.97	13.42	13.19	131.35	143.05	111.79	254.21

1999-2004 Productivity Report - Page 20

SCH/FTEE will not change significantly for the DMS program due to the limited class size and number of internship sites.

K. ASSESSMENT AND EVALUATION

1. The following chart shows how and where the DMS program evaluates program variables.

Activity	When completed	What is Done	Follow-up
Mastery Lab and clinic skill Performance (scanning skills)	Fall , winter, and summer semesters	Competency evaluation, exams Students must score 90% or better	Monitor student progress on internship
Graduation rate (ability to learn and use material)	Annually	Monitor	Improve remediation if possible

Survey graduates (are graduates successful)	6-8 months year post degree	Surveys circulated to faculty	Annual assessment make changes as needed
Survey employers (are graduates employable)	Annually	Surveys circulated to faculty	Annual assessment
Clinical faculty evaluate student's preparation (are graduates employable)	At the end of clinical experience	Surveys circulated to faculty	Annual assessment make changes as needed
Students evaluate clinical experience (are students effective sonographers)	At end of each clinical rotation	Surveys circulated to faculty	Annual assessment make changes as needed
Certification exam evaluation (are students able to use the information taught)	ARRT annually ARDMS annually	Scores and analysis circulated to faculty	Annual assessment make changes as needed
Survey current students (are students needs being met)	Annually and by semester with SAI's	Survey results circulated, SAI results are assessed by each faculty member	Annual assessment make changes as needed
Adjunct instructor survey (are students developing the mastery skills they need)	Annual	Surveys circulated to faculty	Annual assessment make changes as needed
Advisory committee meeting (is the program meeting the need of the community)	Annual	Discussions	Annual assessment make changes as needed
Monitor program attrition (leavers) (Is the program meeting the needs of the students)	Each semester	Faculty discussions	Continual assessment of students needs

In addition each course is evaluated for specific course outcomes.

During the first year of the program, on campus students must pass assessment tools for mastery level skills. Skills competencies are demonstrated in:

- Sono 101 - demonstration of knowledge of lab equipment
- Sono 110 - demonstration of producing and recognizing basic abdominal anatomy using a human patient
- Sono 110 - professionalism and behavioral traits competencies are evaluated daily, non professional behavior will result in dismissal from the program

- Sono 120 - demonstration of producing and recognizing basic female reproductive anatomy with ultrasound on a human patient
- Sono 120 - professionalism and behavioral traits competencies are evaluated daily, non professional behavior will result in dismissal from the program
- Sono 130 - demonstration of image production and anatomy recognition of abdominal ultrasound imaging in a prescribed time period
- Sono 130 - professionalism and behavioral traits competencies are evaluated daily, non professional behavior will result in dismissal from the program
- All didactic courses are evaluated by a combination of oral, written, and comprehensive mock registry style exams.

2. Provide trend data for the variables listed above. One of the ways the DMS program assesses program effectiveness is through board registry rates by the ARDMS (American Registry of Diagnostic Medical Sonographers). The following grids explain how Ferris graduates are doing compared to the national average on the ARDMS registry exams:

*To earn an ARDMS credential applicants must pass both a physics test (UPI ultrasound physical instrumentation) and a modality specialty like abdomen, OB, vascular technology. Some students may not be reported as having a credential because they have only taken 1 of the 2 required exams.

Ultrasound modality or exam	National Pass Rate	Ferris Pass Rate
Abdomen	58.2%	2004 29% 7 graduates attempting 2005 86% 4 graduates attempting 2006 67% 6 graduates attempting
UPI (physics)	58.6	2004 55% 11 grads attempting 2005 67% 12 grads attempting 2006 0% 1 graduate attempting
OB/GYN	71.8	2004 29% 7 attempting 2005 86% 4 students attempting 2006 100% 1 student attempting

The year of 2004 represents the class taught by an instructor who has never practiced or studied diagnostic medical sonography. With the exception of that year, Ferris graduates are consistently above the national average for registry pass rates. Sonographers are allowed to take each exam up to three times before having to remediate their sonography education. The program does not have a way of tracking whether the same graduate has not passed the same abdomen exam three times, thus bringing down these numbers. The following chart shows the percent of Ferris graduates who have attempted board registry exams and passed:

Total number of Ferris students taking any board exams	% FSU students that have taken a test and hold a credential	% of students that have only taken one test (and therefore cannot yet hold a credential)	% of students that have taken physics and a specialty but are not registered
18 students 100%	12 students 66.6%	2 students 11.1%	4 students 22.2 %

When you combine the 11.1 percent who have passed just one test with the 66.6% who hold a credential, the number of Ferris graduates attempting and passing board exams is seventy-eight percent.

The DMS program will continue to strive to improve these initial board pass rates. No recent graduates have taken the board exams that would be reflective of the many program and curriculum improvements implemented in the past two years. Current faculty are confident that these pass rates will only improve over time. Continuous monitoring of ASRDMS pass rates will occur.

The success of FSU DMS students on the National certifying exam as compared to national pass rates provides documentation of the excellence of this program.

In addition to board pass rates the DMS program also tracks:

- Graduation rates – graduation rates are expected to rise with new program revisions implemented fall of 2005.
- Survey results (graduate, employer, ACI, advisory board) – survey results have shown increases in effectiveness of the program.

3. Describe how the data in 2 is used to assess the rigor, breadth, and currency of the degree requirement of the program. How each of the variables are used in the assessment process is shown below:

Activity	How trend is used
Graduation rate (ability to learn and use material)	Currency – What worth is the DMS program to the community and employers? Rigor and Breadth- If graduation rates fall; the program will update the curriculum to meet the student's needs.
Survey graduates (are graduates successful)	Rigor and breadth – Did we provide correct skill level and curriculum needed for graduates to be successful? If graduates are not successful, the program will change the curriculum to meet the graduate's needs. Currency – Are graduates demonstrating terminal outcomes? Are graduates entry level sonographers?

Survey employers (are graduates employable)	Rigor and breadth – Did we provide correct skill level and curriculum needed for graduates to be successful? If we are not meeting the employers need, the program will change the curriculum to be more relevant for the community. Currency – Are graduates demonstrating terminal outcomes? Are graduates entry level sonographers?
Clinical faculty evaluate student's preparation (are graduates employable)	Rigor and breadth – Did we provide correct skill level and curriculum needed for graduates to be successful in the clinical rotation? Currency – Are graduates demonstrating terminal outcomes? Are graduates entry level sonographers?
Students evaluate clinical experience (are students effective sonographers)	Currency – Are students learning course stated outcomes? Do students recognize they are learning the outcomes? Can they demonstrate the skills? Rigor and Breadth- We can asses if the equipment and resources provided are satisfactory for teaching new sonographers. The program will change the curriculum to meet the need if the students demonstrate the clinical experience is not effective.
Certification exam evaluation (are students able to use the information taught)	Rigor – How accurately can our student demonstrate skills? Breadth – How many skills can the students demonstrate? How much material can be used critically by the student? Currency – We can measure if the program is providing the skills necessary to fulfill terminal and course outcome goals.
Survey current students (are students needs being met)	Currency – Are students learning course stated outcomes? Do they recognize they are learning the outcomes? Can they demonstrate the skills?
Adjunct instructor survey (are students developing the mastery skills they need)	Rigor and breadth – Did we provide correct skills level and curriculum needed for graduates to be successful? Currency – Are graduates demonstrating terminal outcomes? Are graduates entry level sonographers? Do graduates demonstrate professional and ethical behaviors?
Advisory committee meeting (is the program meeting the need of the community)	Rigor and breadth – Did we provide correct skills level and curriculum needed for graduates to be successful? Currency – are graduates demonstrating terminal outcomes? Are graduates entry level sonographers?
Monitor program attrition (leavers) (Is the program meeting the needs of the students)	Is the program serving the needs of the student population?

4. Describe how the data in 2 is being used to assess the extent to which program goals are being met. Based on the results of the data above, the following changes have been made to the curriculum and teaching pedagogy in the DMS program.
   - Increased lab times have been implemented.
   - Lecture and teaching techniques have been improved.
   - Web CT enhancement has been implemented.
   - More critical thinking has been introduced into the curriculum.

- More technical writing has been introduced into the curriculum.
- Lab and didactic courses have been separated.
- Small parts and neonatal competencies have been removed from previous courses and integrated into courses of their own.
- Professional and behavioral traits are assessed on campus and in the clinical internship.
- Additional image critiquing has been implemented.

L. ADMINISTRATION EFFECTIVENESS

1. Discuss the adequacy of administrative and clerical support for the program. The administrative and clerical support for the DMS program has been outstanding. During the 2005-2006 academic year, much more organization and support has been felt by the DMS program faculty. A dedicated department head and secretary for the Dental Hygiene and Imaging Programs has made a big difference for the program. The interim dean has been open to innovative ideas and demonstrates a willingness to change old policies. The implementation of Banner during summer/fall registration has added to the ability of the secretarial staff to be as effective as they want to be for the program.

2. How does the condition of the current facilities impact program delivery. The audio visual in the classrooms have only worked intermittently during the school year. However, both classrooms used by DMS faculty are being remodeled during the 2006 summer semester

3. Are the teaching and class schedules effectively and efficiently prepared? Comment. Yes, the teaching and class schedules for the DMS program are very efficiently prepared.

4. Are students able to take the courses they need in a timely manner? The professional sequence of courses are sequential and offered once a year. All DMS students are able to take the courses they need in a timely manner.

Section 4: Facilities and Equipment

A. INSTRUCTIONAL ENVIRONMENT

Discussion 1-5

1. Classrooms, labs and technology on campus are adequate. The classrooms in the VFS building are being remodeled during the summer of 2006. Classrooms with outdated media will be fit with the "smart stations" which include state of the art projection and media options. With the closure of the environmental health program, the sonography lab is scheduled to move into their existing space once the area is remodeled. The current sonography lab does need updating. However with the proposed move, a remodel of existing space has been put on hold.

2. The current classrooms used by the DMS program provide an older style desk that is not appropriate for larger or left handed students. The proxima cameras occasionally overheat and leave the faculty with no power point projection. The faculty have to rearrange the seating daily to accommodate the student during lecture. The classrooms do not hinder learning but do make it more difficult to teach. VFS 326 A was remodeled in the fall semester 2005 and VFS 420 is slated to be remodeled summer of 2006.

3. The DMS program would like to expand it's curriculum to include vascular technology in the near future. The DMS program is in need of updated ultrasound imagers that include 3-D and 4-D modalities. The program lab currently has very little space to add new equipment. The sonography lab currently has five imagers but there is only space to use four at a time with proper privacy.

4. Future plans for the DMS program are to move the lab space to the 1st floor and create an interdisciplinary imaging lab for sonography, radiography and nuclear medicine. The classrooms historically used by the DMS program are being remodeled summer of 2006.

5. The remodel of the building this summer will improve:
   - Climate control in the classrooms.
   - Collaborative learning with the new moveable desks and chairs.
   - Update media.

   The new smart station will allow student and faculty work on the white board to be printed off and distributed or put on Web CT as examples.

   The future remodel of the 1st floor will allow for:
   - Larger lab space for all current equipment to be used and give the DMS program space to grow and add more updated technology.
   - An interdisciplinary space where all of the imaging programs can work together. A common reading room where x-rays, ultrasound images, and nuclear medicine scans can be stored and accessed by all programs.

- An interdisciplinary space where a mock emergency room can be use by all health profession programs to train and model professional skills

B. COMPUTER ACCESS AND AVAILABILITY

1. The Sonography lab utilizes a lap top computer to facilitate lecture presentations and is available for student use in the lab. The laptop does not have a printer.

2. The lap top contains the software for a 600 question mock registry review with simulated images and critical thinking ultrasound questions. The lap top provides student access to the internet and Web CT for research or course information. The CAHS computer lab is also available for students to access their Web CT. The use of Web CT occurs frequently in all of the on-campus sonography program courses. In the first year sonography courses it is used to:
   - Keep the grade book and attendance.
   - Post weekly lectures and assignments.
   - E-mail the instructor or each other.
   - Post practice quizzes or exams.
   - Do actual quizzes and exams.
   - Post supplemental material.

3. The DMS program is in need of a printer for the laptop computer used in lab. The laptop is in need of additional software programs used in ultrasound education.

4. There is no written plan for these equipment needs. The printer has been requested with grant funding. If grant money is not available, the faculty are considering using PDI money to purchase the printer.

5. Web CT seems to be very efficient and program faculty like this format. There are days when students report they cannot log in to Web CT or My FSU. Faculty have also experienced this frustration. The sonography program is very image driven and students report having a hard time downloading assignments that are large. Images are also hard to post on Web CT due to large file sizes. Overall, the program is pleased with the efficiency of the online services and Web CT.

6. The support the program has had with Web CT has been patchy. There are days when someone will answer your questions and days when you never get a reply. Students report having difficulty logging on to Web CT through the Ferris portal. Support for Web CT has increased during the 2005-2006 school year. Requesting new courses is now much easier. The biggest hurdle the program found is getting a live person to answer a question. Often colleagues are a better resource to resolve Web CT issues.

C. OTHER INSTRUCTIONAL TECHNOLOGY

1. The DMS program has 1 MedSim ultrasound simulator and 5 ultrasound imagers.

2. The simulator is used to perform ultrasound practice on populations not easily found. The simulator is a good first scanning experience where students do not have to worry about ultrasound dwell time or lengthy ultrasound exposure. The simulator is also used to simulate invasive procedures like transvaginal ultrasound. The imagers are used to practice ultrasound protocols and techniques and learn cross sectional anatomy on actual human subjects.

3. The resources used are adequate. The imagers are far from state of the art and lack some basic tools that are being commonly used in healthcare facilities but provide adequate representation for students. Teaching ultrasound techniques without the bells and whistles of new equipment is actually beneficial to our students because they receive a good foundation of how and why the equipment works. However, an additional imager with 3-D, power doppler, and / or volumetric packages would be beneficial to the students.

4. There is not a plan for acquisitioning these items. These items are put on a vocational grant list and are prioritized by the CAHS. At this time, the requests of the DMS program are not as urgent as the needs of other CAHS programs.

5. There are no other types of technology used in the DMS program.

D. LIBRARY RESOURCES

Discussion 1-3

1. The allied health librarian is always researching new ultrasound books for the program to add to the library collection. Due to the newness of the program, resources are slowly being collected. The DMS program has a nice collection of resource materials at the library. The ability to access professional journals on the database is a very big asset to the program.

2. The services of the library on the Big Rapids Campus are wonderful. Library staff provide in-services for 1st year students in both FSUS 100 and SONO 100. The staff member explains the services, resources and expensive periodicals that are available at no cost to students.

3. The budget and resources at FLITE have been excellent for the DMS program.

Section 5: Conclusions

A. RELATIONSHIP TO MISSION

The FSU DMS program strives to use the most innovative teaching and learning techniques available. The FSU on campus model is unique and provides a hands on approach to preparing the students for a skills oriented career.

Although not yet a leader in ultrasound education this building program is heading in that direction. The FSU program will showcase their program at the 2006 Lilly North conference.

B. PROGRAM VISIBILITY AND DISTINCTIVNESS

The Ferris DMS program has a unique lab model in teaching diagnostic medical sonography. The program provides more on campus preparation than any other sonography program in the state. The student scanning experience in their internship year is considerably more meaningful because of this preparation on campus during the first year of the program. Ferris graduates are sought after because of their demonstrated skill level upon graduation as compared to other program graduates in the state.

The on-campus learning model allows students to learn professionalism and ethics. These traits are highly sought after by employers and Ferris graduates consistently rate high in these categories.

The Ferris DMS program is a newer program and is still building a solid reputation. The program was showcased at the State SDMS (Society of Diagnostic Medical Sonographers) conference in Pontiac, Michigan during May of 2006.

C. PROGRAM VALUE

The value of the Ferris Ultrasound Program is to provide high quality ultrasound technologists for a national shortage of sonographers. Employer surveys reflect that Ferris DMS graduates are filling the needs of their community. An overall ranking of the graduate's knowledge of ultrasound was 4.9 on a 1-5 Likert type scale as reported in employer surveys in 2005. Faculty are leaders and mentors who encourage students to become active in their community and profession. The Ferris DMS program is the Northern most program in the state to offer Diagnostic Medical Sonography. Students from the Upper Peninsula and Northern Michigan are provided the opportunity to study sonography closer to home by attending Ferris State University.

D. ENROLLMENT

The Diagnostic Medical Sonography Program has a two-three year waitlist for progression into the professional sequence. Professional sequence classes enroll twenty students per year. Advising lists calculate about 90-100 Pre-DMS and DMS students working toward their degree each year.

E. CHARACTERISTICS, QUALITY AND EMPLOYMENT OF STUDENTS

Ferris graduates are very well prepared. This is evidenced by our high placement rates in a state where ultrasound jobs are becoming harder to find. Ferris graduates fair very well against graduates from other programs.

Adjunct clinical instructors and employers each rate Ferris DMS students as very well prepared for the job market. One hundred percent of employers responding are very happy with the FSU graduate they have employed.

Ferris State University DMS graduates are placing above the national average in national board exams. The professionalism and affective behavioral measures were the highest characteristics reported by employers and adjunct clinical instructors.

The FSU DMS students and graduates:

- Display ethical and professional behavior.
- Demonstrate the psychomotor skills of a sonographer.
- Use critical thinking skills to interpret films.
- Connect to their university and community through a service major and community service.
- Practice around the country as diagnostic medical sonographers.

F. QUALITY OF CURRICULUM AND INSTRUCTION

The program faculty spent a lot of time breaking apart each learning outcome of the program for accreditation standards, course learning outcomes and program learning outcomes. Faculty are confident with the program revisions that will be effective in the fall of 2007. The DMS Program will deliver and meet the competencies to achieve the program goals and outcomes.

In the next 3-5 years, the program plans continuous assessment of the courses, student outcomes and success of the program. The program will continue to assess each course each semester and make modifications accordingly.

A plan for the measurement of FSU DMS outcomes is found in Appendix G.

G. COMPOSITION AND QUALITY OF THE FACULTY

The Ferris State University DMS program employs two dedicated diagnostic medical sonographers with a combined 25 years of ultrasound experience. Each is appropriately credentialed in the basics of ultrasound, as well as several additional specialty registries. Each faculty member came to the Ferris DMS program with teaching experience in other ultrasound programs. Both of the faculty members have a vision to make this program a national leader in ultrasound education. Since the addition of the current faculty members, program instruction ratings on student, graduate, and employer surveys have all increased favorably.

GRADUATE SURVEY

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

JRC-DMS Accredited Program #_____

The primary goal of a Diagnostic Medical Sonography Education program is to prepare the graduate to function as a competent sonographer. This survey is designed to help the program faculty determine the strengths and areas for improvement for our program. All data will be kept confidential and will be used for program evaluation purposes only.

BACKGROUND INFORMATION:

Name of Graduate: _____

Length of employment at time of evaluation: _____ years and _____ months.

Name (if different from that on the cover): _____

What specialty education did you complete: ☐ general ☐ vascular ☐ cardiac

Credential Status (*check all that apply*): ☐ RDMS (☐ Abdomen ☐ Obstetrics) ☐ Other_____ ☐ RDCS ☐ RVT

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.

5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. KNOWLEDGE BASE (Cognitive Domain)

THE PROGRAM:

A.	Helped me acquire the sonography care knowledge necessary to function in a healthcare setting.	5	4	3	2	1	N/A
B.	Helped me acquire the general medical knowledge base necessary to function in a healthcare setting.	5	4	3	2	1	N/A
C.	Prepared me to collect data from charts and patients.	5	4	3	2	1	N/A
D.	Prepared me to interpret patient data.	5	4	3	2	1	N/A
E.	Prepared me to evaluate diagnostic findings in order to perform appropriate diagnostic procedures.	5	4	3	2	1	N/A
F.	Trained me to use sound judgment while functioning in a healthcare setting.	5	4	3	2	1	N/A

Comments:_____

_____

_____

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. CLINICAL PROFICIENCY (Psychomotor Domain)

THE PROGRAM:

F. Prepared me to perform a broad range of sonography examinations in the following specialty in which I trained (circle only those that apply).

General	5	4	3	2	1	N/A
Cardiac	5	4	3	2	1	N/A
Vascular	5	4	3	2	1	N/A

H.	Prepared me with the skills to perform patient assessment.	5	4	3	2	1	N/A
I.	Prepared me to perform up-to-date sonography procedures.	5	4	3	2	1	N/A
J.	Prepared me to perform and interpret diagnostic procedures	5	4	3	2	1	N/A

Comments:_____

_____

_____

II. BEHAVIORAL SKILLS (Affective Domain)

THE PROGRAM:

K.	Prepared me to communicate effectively within a healthcare setting.	5	4	3	2	1	N/A
L.	Prepared me to conduct myself in an ethical and professional manner.	5	4	3	2	1	N/A
M.	Prepared me to manage my time efficiently while functioning in a healthcare setting.	5	4	3	2	1	N/A

Comments:_____

_____

_____

IV. GENERAL INFORMATION *(Check yes or no)*

A.	I have actively pursued attaining my sonography credentials.	☐ YES	☐ NO
B.	I am a member of a state/local sonography professional association.	☐ YES	☐ NO
C.	I am a member of a national sonography professional association.	☐ YES	☐ NO
D.	I actively participate in continuing education activities.	☐ YES	☐ NO

Comments:_____

V. OVERALL RATING of the program:

Please rate and comment on the **OVERALL** quality of your preparation as an **ENTRY-LEVEL** sonographer:

5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor

Comments:

VI. ADDITIONAL COMMENTS

Based on your work experience, please identify two or three strengths of the program.

Based on your work experience, please make two or three suggestions to further strengthen the program.

What qualities/skills (if any) were expected of you upon employment, that were not included in the program?

Please provide comments and suggestions that would help to better prepare future graduates.

Thank You!

Date: _____

5/2001

EMPLOYER SURVEY

DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

JRC-DMS Accredited Program #_____

The primary goal of a Diagnostic Medical Sonography Education program is to prepare the graduate to function as a competent ENTRY-LEVEL sonographer. This survey is designed to help the program faculty determine the strengths and areas for improvement for our program. All data will be kept confidential and will be used for program evaluation purposes only. We request that this survey be completed by the graduate's immediate supervisor.

BACKGROUND INFORMATION:

Name of Graduate: _____

Length of employment at time of evaluation: _____ years and _____ months.

What credentials as an employer do you require of your sonographers?: ☐ RDMS (☐Abdomen ☐Obstetrics) ☐Other_____
☐ RDCS ☐ RVT

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.

5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. KNOWLEDGE BASE (Cognitive Domain)

THE GRADUATE:

A.	Has the sonography knowledge necessary to function in a healthcare setting.	5	4	3	2	1	N/A
B.	Has the general medical knowledge necessary to function in a healthcare setting.	5	4	3	2	1	N/A
C.	Is able to collect data from charts and patients.	5	4	3	2	1	N/A
D.	Is able to interpret patient data.	5	4	3	2	1	N/A
E.	Is able to recommend appropriate diagnostic and therapeutic procedures.	5	4	3	2	1	N/A
F.	Uses sound judgment while functioning in a healthcare setting	5	4	3	2	1	N/A

Comments:_____

_____

_____

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

II. CLINICAL PROFICIENCY (Psychomotor Domain)

THE GRADUATE:

G.	Effectively performs a broad range of clinical skills.	5	4	3	2	1	N/A
H.	Possesses the skills to perform patient assessment.	5	4	3	2	1	N/A
I.	Is able to perform current sonography procedures and modalities.	5	4	3	2	1	N/A
J.	Is able to perform and interpret diagnostic procedures.	5	4	3	2	1	N/A

Comments:_____

_____

_____

III. BEHAVIORAL SKILLS (Affective Domain)

THE GRADUATE:

K.	Communicates effectively within a healthcare setting.	5	4	3	2	1	N/A
L.	Conducts himself/herself in an ethical and professional manner.	5	4	3	2	1	N/A
M.	Functions effectively as a member of the healthcare team.	5	4	3	2	1	N/A
N.	Accepts supervision and works effectively with supervisory personnel.	5	4	3	2	1	N/A
O.	Is self-directed and responsible for his/her actions.	5	4	3	2	1	N/A

Comments:_____

_____

IV. OVERALL RATING:

Please rate and comment on the OVERALL quality of this program's graduate:

5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor

Comments:

_____

_____

ADDITIONAL COMMENTS

What qualities or skills (if any) did you expect of the graduate upon employment that he/she *did not* possess?

_____

_____

Please provide comments and suggestions that would help this program to better prepare future graduates.

_____

_____

What are strengths of the graduate(s) of this program?

_____

_____

If given the opportunity, would you hire another graduate from this program? Yes / No

_____ _____ _____

Rater Signature Date Title

5/2001

Ferris State University Radiography Program
Graduate exit survey

Please take a few minutes to answer these survey questions regarding the overall effectiveness of the Sonography Program. Answer these questions based on your own observations and experiences. This information will be used to improve the FSU Radiography Program. Any comments or suggestions are greatly appreciated. Thank you.

5= Excellent 4= Good 3 = Fair 2 = Poor 1= Unacceptable

#							Comments
1.	Appropriateness of textbooks	5	4	3	2	1	
2.	Appropriateness of test and quizzes	5	4	3	2	1	
3.	Organization of classes	5	4	3	2	1	
4.	Practicality of required courses	5	4	3	2	1	
5.	Schedule of classes and labs	5	4	3	2	1	
6.	Availability of instructors outside of class	5	4	3	2	1	
7.	Instructor feedback	5	4	3	2	1	
8.	Use of audiovisual aids	5	4	3	2	1	
9.	Quality of educational resources	5	4	3	2	1	
10.	Quality of library resources	5	4	3	2	1	
11.	Overall effectiveness of academic portion of program	5	4	3	2	1	
12.	Organization of Clinical Program	5	4	3	2	1	
13.	Availability and professional ability of clinical coordinator	5	4	3	2	1	
14.	Availability and professional ability of clinical instructor	5	4	3	2	1	
15.	Communication between clinical staff and students	5	4	3	2	1	
16.	Professionalism of clinical staff	5	4	3	2	1	

17.	Amount of time spent in clinical	5	4	3	2	1	
18.	Use of rotations outside of diagnostic radiography	5	4	3	2	1	
19.	Length of rotations	5	4	3	2	1	
20.	Overall effectiveness of clinical program	5	4	3	2	1	
21.	Enough time was given to review/class time during clinical program						
22.	Effectiveness of programs policies	5	4	3	2	1	
23.	Enforcement of program policies	5	4	3	2	1	
24.	Programs willingness to incorporate student ideas	5	4	3	2	1	
25.	Overall effectiveness of program	5	4	3	2	1	
26.	Overall effectiveness of student services	5	4	3	2	1	
27.	Overall effectiveness of leadership of college administration	5	4	3	2	1	

Additional comments:

STUDENT
PROGRAM RESOURCE SURVEY

NAME OF INSTITUTION

Diagnostic Medical Sonography Program

JRC-DMS Accredited Program #_____

The purpose of this survey instrument is to evaluate our program resources. The data compiled will aid the program in an ongoing process of program improvement.

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. PERSONNEL RESOURCES (PROGRAM FACULTY)

A.	**FACULTY TEACH EFFECTIVELY:**						
	1. In the classroom	5	4	3	2	1	N/A
	2. In the laboratory	5	4	3	2	1	N/A
	3. In the clinical area	5	4	3	2	1	N/A
B.	**FACULTY NUMBER IS ADEQUATE:**						
	1. In the classroom	5	4	3	2	1	N/A
	2. In the laboratory	5	4	3	2	1	N/A
	3. In the clinical area	5	4	3	2	1	N/A
C.	**FACULTY MEMBERS HAVE GOOD RAPPORT WITH STUDENTS.**	5	4	3	2	1	N/A
D.	**FACULTY MEMBERS ARE WILLING TO HELP STUDENTS WITH ACADEMIC NEEDS.**	5	4	3	2	1	N/A
E.	**FACULTY ENSURE STUDENT REPRESENTATION ON THE ADVISORY COMMITTEE.**	5	4	3	2	1	N/A

Comments:_____

_____

_____

II. PHYSICAL RESOURCES

A.	**INSTRUCTIONAL RESOURCES: CLASSROOMS**						
	1 Are adequate in size.	5	4	3	2	1	N/A
	2. Have adequate lighting.	5	4	3	2	1	N/A
	3. Contain adequate seating.	5	4	3	2	1	N/A
	4. Have adequate ventilation.	5	4	3	2	1	N/A
	5. Are provided with appropriate equipment to support effective instruction.	5	4	3	2	1	N/A

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that

indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

B. INSTRUCTIONAL RESOURCES: LABORATORY

1.	Is adequate in size	5	4	3	2	1	N/A
2.	Has adequate lighting	5	4	3	2	1	N/A
3.	Has adequate seating	5	4	3	2	1	N/A
4.	Has adequate ventilation	5	4	3	2	1	N/A
5.	Is equipped with the amount of equipment necessary for student performance of required laboratory exercises.	5	4	3	2	1	N/A
6.	Is equipped with the variety of equipment necessary for student performance of required laboratory exercises.	5	4	3	2	1	N/A
7.	Is equipped with the amount of supplies necessary for student performance of required laboratory exercises.	5	4	3	2	1	N/A
8.	Is equipped with the variety of supplies necessary for student performance of required laboratory exercises.	5	4	3	2	1	N/A
9.	Activities prepare the student to perform effectively in the clinical setting.	5	4	3	2	1	N/A
10.	Is accessible to students outside regularly scheduled class times.	5	4	3	2	1	N/A

Comments:_____

_____

_____

III. LEARNING RESOURCES

A. LIBRARIES (SCHOOL AND CLINICAL AFFILIATES LIBRARIES)

1.	The program faculty and/or the library personnel, offer orientation and demonstration of the library services.	5	4	3	2	1	N/A
2.	The institutional library personnel provide assistance to the students when needed.	5	4	3	2	1	N/A
3.	The libraries provide sufficient materials to support classroom assignments.	5	4	3	2	1	N/A
4.	The library hours are convenient to student schedules.	5	4	3	2	1	N/A
5.	Program assignments require the use of library resources.	5	4	3	2	1	N/A

B. STUDENT INSTRUCTIONAL SUPPORT SERVICES (TUTORS, COMPUTER LAB. ETC.)

1	Tutors provide assistance to the students when needed.	5	4	3	2	1	N/A
2.	Audiovisual and computer equipment are available to students for class assignments and activities.	5	4	3	2	1	N/A
3.	Computer resources are adequate to support the curriculum.	5	4	3	2	1	N/A
4.	Student Instructional Support Services are readily accessible to all students.	5	4	3	2	1	N/A

Comments:_____

_____

_____

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.

5 = Strongly Agree	4 = Generally Agree	3 = Neutral (acceptable)	2 = Generally Disagree	1 = Strongly Disagree	N/A = Not Applicable

IV. CLINICAL RESOURCES

A. CLINICAL ROTATIONS

1. Facilities

a.	The clinical facilities offer an adequate number of procedures for the student to meet clinical objectives.	5	4	3	2	1	N/A
b.	The clinical facilities offer an adequate variety of procedures for the student to meet clinical objectives.	5	4	3	2	1	N/A
c.	The clinical facilities provide a variety of current equipment.	5	4	3	2	1	N/A

2. Experiences

a.	Each clinical rotation is of sufficient length to enable the student to complete clinical objectives.	5	4	3	2	1	N/A
b.	Each clinical rotation provides sufficient number of hands-on patient scanning.	5	4	3	2	1	N/A
c.	Clinical rotations are sufficient to provide overall equivalent competencies for all students	5	4	3	2	1	N/A

B. CLINICAL INSTRUCTION

1.	Students are adequately oriented to assigned clinical areas, and procedures.	5	4	3	2	1	N/A
2.	Clinical instructors are sufficiently knowledgeable to provide student instruction.	5	4	3	2	1	N/A
3.	Clinical instructors direct the students in completing the assigned objectives.	5	4	3	2	1	N/A
4.	Clinical instructors are consistent in their evaluation of student performance.	5	4	3	2	1	N/A
5.	Clinical instructors are readily available to assist students when needed.	5	4	3	2	1	N/A

Comments:_____

_____

_____

V. PHYSICIAN INTERACTION

A.	Physician/student interaction facilitates the development of effective communication skills between physicians and students.	5	4	3	2	1	N/A
B.	Physician Contact is sufficient to provide the student with a physician perspective of patient care.	5	4	3	2	1	N/A
C.	Overall student exposure to physicians in the program is adequate.	5	4	3	2	1	N/A

Comments:_____

_____

_____

VI. ADDITIONAL COMMENTS

How long have you been a student in the program? _____

OVERALL RATING:

Please rate the OVERALL quality of the resources supporting the program. ***(Circle one)***

5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor

Based on your experience, which program resources provided you with the most support?

_____

_____

_____

_____

_____

Based on your experience, which program resources could be improved?

_____

_____

_____

_____

_____

Please provide comments and suggestions that would help to improve the program's overall resources.

_____

_____

_____

_____

_____

Thank You!

Date: _____

5-2001

Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS)

Self-Study Faculty Evaluation Questionnaire

INSTRUCTIONS: Each faculty member (didactic, laboratory, and clinical; paid and volunteer, and the Medical Director) shall be given a copy of this questionnaire as a part of the self-study process. The evaluation questionnaire is to be placed in PART K of the Self-Study report.

Name of the Program:_____

Your responsibility with the program (check one)

- ❒ Program Director
- ❒ Clinical Coordinator
- ❒ Medical Director
- ❒ Full-Time Faculty Member
- ❒ Part-Time Laboratory Instructor ❒ Paid ❒ Volunteer
- ❒ Part-Time Didactic Instructor ❒ Paid ❒ Volunteer
- ❒ Part-Time Clinical Instructor ❒ Paid ❒ Volunteer

Please rate each of the following items by circling the appropriate rating according to the following scale:

1. Administrative support

	Poor	Below Average	Satisfactory	Above Average	Not Applicable
A. College Administration (Dean, Division Chair)	1	2	3	4	N/A
B. Salary	1	2	3	4	N/A
C. Financial Resources	1	2	3	4	N/A
D. Teaching Loads	1	2	3	4	N/A
E. Communities of Interest (e.g. employers)	1	2	3	4	N/A

2. How well do the program resources meet the state purposed(s) for those resources?

	Poor	Below Average	Satisfactory	Above Average	Not Applicable
A. Secretarial Support	1	2	3	4	N/A
B. Classroom Facilities	1	2	3	4	N/A
C. Laboratory Facilities	1	2	3	4	N/A
D. Laboratory Equipment and Supplies	1	2	3	4	N/A
E. Library/Learning Resource Center	1	2	3	4	N/A
F. Overall Clinical Resources					

3. Faculty (do not rate your own position)

	Poor	Below Average	Satisfactory	Above Average	Not Applicable
A. Program Director	1	2	3	4	N/A
B. Clinical Coordinator *(if applicable)*	1	2	3	4	N/A
C. Medical Director	1	2	3	4	N/A
D. Clinical Faculty	1	2	3	4	N/A
E. Other Sonography Faculty *(if applicable)*	1	2	3	4	N/A
F. Science faculty	1	2	3	4	N/A

4. Curriculum

	Poor	Below Average	Satisfactory	Above Average	Not Applicable
A. Depth and breadth of program	1	2	3	4	N/A
B. Course Sequencing	1	2	3	4	N/A
C. General Science Courses	1	2	3	4	N/A
D. Basic Sonography curriculum content	1	2	3	4	N/A
E. Laboratory practice and competency attainment	1	2	3	4	N/A
F. Clinical curriculum content	1	2	3	4	N/A
G. Other:	1	2	3	4	N/A

5. Clinical Coordination

	Poor	Below Average	Satisfactory	Above Average	Not Applicable
A. Communication between the Clinical Coordinator and Clinical Preceptors	1	2	3	4	N/A
B. Clinical Evaluation Instruments	1	2	3	4	N/A
C. Parallel experiences among students	1	2	3	4	N/A
D. Supervision of students	1	2	3	4	N/A
E. Consistency of evaluation of students	1	2	3	4	N/A
F. Other:	1	2	3	4	N/A

6. What do you consider to be the major strengths of the program?

7. What areas do you believe need improvement?

Thank You!

Date_____

Please include it in PART K of the self-study document and return it to the JRC-DMS Executive Office at 2025 Woodlane Drive, St. Paul, MN 55125.

PROGRAM PERSONNEL
PROGRAM RESOURCE SURVEY

Ferris State University
Diagnostic Medical Sonography Program

JRC-DMS Accredited Program # _____

The purpose of this survey instrument is to evaluate our program resources. The data compiled will aid the program in an ongoing process of program improvement. Unless specified, all sections should be completed by program faculty, Medical Director, and Advisory Committee.

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

I. PERSONNEL RESOURCES

A. PROGRAM FACULTY *(Completed by Medical Directors & Advisory Committee Members)*

1. Faculty keep the Advisory Committee informed of program status.	5	4	3	2	1	N/A
2. Faculty encourage and utilize input from the advisory board/ communities of interest.	5	4	3	2	1	N/A
3. Faculty foster positive relations with clinical affiliates.	5	4	3	2	1	N/A
4. Faculty encourage student participation in professional activities.	5	4	3	2	1	N/A
5. Faculty request annual review of goals and standards by the Advisory Committee.	5	4	3	2	1	N/A

B. MEDICAL DIRECTOR(S) *(Completed by Program Faculty and Advisory Committee)*

1. Medical Director(s) assist(s) the program faculty to provide physician interaction opportunities for students.	5	4	3	2	1	N/A
2. Medical Director(s) participate(s) in curriculum design modification to ensure appropriate scope and accuracy of medical content.	5	4	3	2	1	N/A

Comments:_____

_____

_____

II. FACILITIES

1. Classrooms						
a. Are adequate in size	5	4	3	2	1	N/A
b. Have adequate lighting	5	4	3	2	1	N/A
c. Contain adequate seating.	5	4	3	2	1	N/A
d. Have adequate ventilation.	5	4	3	2	1	N/A
e. Are provided with appropriate equipment to support effective instruction.	5	4	3	2	1	N/A

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

2. Laboratory
   a. Is adequate in size 5 4 3 2 1 N/A
   b. Has adequate lighting 5 4 3 2 1 N/A
   c. Contains adequate seating 5 4 3 2 1 N/A
   d. Has adequate ventilation 5 4 3 2 1 N/A
   e. Is accessible to students outside regularly scheduled class times. 5 4 3 2 1 N/A

III. LABORATORY EQUIPMENT

1. The amount of equipment is sufficient for student performance of required laboratory exercises. 5 4 3 2 1 N/A
2. The variety of equipment is sufficient for student performance of required laboratory exercises. 5 4 3 2 1 N/A
3. Supplies are sufficient for student performance of required laboratory exercises. 5 4 3 2 1 N/A
4. Laboratory activities prepare the student to perform effectively in the clinical setting. 5 4 3 2 1 N/A

IV. LEARNING RESOURCES

1. Libraries (school and hospital/affiliate)
   a. Program assignments require the use of library resources. 5 4 3 2 1 N/A
   b. The libraries provide sufficient materials to support assignments. 5 4 3 2 1 N/A
2. Computer resources are adequate to support the curriculum. 5 4 3 2 1 N/A
3. Learning resources are available outside regular classroom hours. 5 4 3 2 1 N/A

Comments:_____

_____

V. PROGRAM SUPPORT PERSONNEL

SECRETARIAL SUPPORT

The secretarial staff is adequate to meet the clerical needs of the program 5 4 3 2 1 N/A

Comments:_____

_____

VI. FINANCIAL RESOURCES

A. INSTITUTIONAL BUDGET

The institutional budget provides the Sonography Program with equal access to all financial resources available to all other instructional programs. 5 4 3 2 1 N/A

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

B. PROGRAM BUDGET

1. Provides for sufficient access to functioning and up-to-date equipment to achieve classroom and laboratory competencies.	5	4	3	2	1	N/A
2. Provides for supply purchases necessary to achieve the program's classroom and laboratory competencies.	5	4	3	2	1	N/A
3. Provides for a sufficient number of faculty for didactic (classroom) instruction.	5	4	3	2	1	N/A
4. Provides for a sufficient number of faculty for laboratory and clinical instruction.	5	4	3	2	1	N/A
5. Provides for adequate continuing professional development of full-time faculty.	5	4	3	2	1	N/A

Comments:_____

_____

_____

VII. CLINICAL RESOURCES

A. CLINICAL ROTATIONS

1. Facilities						
a. The clinical facilities offer an adequate number of procedures for the student to meet clinical objectives.	5	4	3	2	1	N/A
b. The clinical facilities offer an adequate variety of procedures for the student to meet clinical objectives.	5	4	3	2	1	N/A
c. The clinical facilities provide adequate exposure to current equipment.	5	4	3	2	1	N/A
2. Experiences						
a. Each clinical rotation is of sufficient length to enable the student to complete clinical objectives/competencies.	5	4	3	2	1	N/A

B. CLINICAL INSTRUCTION ***(To be completed by clinical instructors only)***

1. Students are adequately prepared to perform scheduled procedures in the clinical setting.	5	4	3	2	1	N/A
2. Clinical activity is sequential to laboratory and didactic instruction.	5	4	3	2	1	N/A
3. Students are prepared to behave in a professional manner in the clinical setting.	5	4	3	2	1	N/A
4. Clinical instructors feel adequately prepared for each group of students.	5	4	3	2	1	N/A
5. There is a sufficient number of instructors for the number of assigned students.	5	4	3	2	1	N/A
6. Students are adequately oriented to the clinical setting.	5	4	3	2	1	N/A

INSTRUCTIONS: Consider each item separately and rate each item independently of all others. Circle the rating that indicates the extent to which you agree with each statement. Please do not skip any rating. If you do not know about a

particular area, please circle N/A.
5 = Strongly Agree 4 = Generally Agree 3 = Neutral (acceptable) 2 = Generally Disagree 1 = Strongly Disagree N/A = Not Applicable

CLINICAL INSTRUCTION (To be completed by key personnel)

1. Clinical instructors are sufficiently knowledgeable to provide student instruction.	5	4	3	2	1	N/A
2. Clinical instructors work with the students to complete the assigned objectives/procedures.	5	4	3	2	1	N/A
3. Clinical instructors are consistent in their evaluation of student performance.	5	4	3	2	1	N/A
4. Clinical instructors are readily available to assist students when needed.	5	4	3	2	1	N/A

Comments:_____

VIII. PHYSICIAN INTERACTION

A. Physician/student interaction is sufficient to facilitate development of effective communication skills between physicians and students.	5	4	3	2	1	N/A
B. Physician Contact is sufficient to provide the student with a physician perspective of patient care.	5	4	3	2	1	N/A
C. Overall student exposure to physicians in the program is adequate.	5	4	3	2	1	N/A

Comments:_____

IX. ADDITIONAL COMMENTS

What position do you hold with this program? _____

OVERALL RATING:

Please rate the OVERALL quality of the resources supporting the program: ***(Please circle one)***

5 = Excellent 4 = Very Good 3 = Good 2 =Fair 1 = Poor

Based on your experience, which program resources provide students with the most support?

_____

_____

_____

_____

Based on your experience, which program resources could be improved?

Please provide comments and suggestions that would help to improve the program's overall resources.

Thank You!

Date: _____

Revised: 5-2001

Ferris State University Sonography Program
Adjunct Clinical Instructor Survey

	Excellent	Good	Acceptable	Below Expectations	Poor
The current curriculum meets the need of our graduating students.	5	4	3	2	1
The program provides students with the necessary skills for entering the job market.	5	4	3	2	1
The program meets the current trends in Sonography	5	4	3	2	1
Program is continually reviewed and improved to keep up with changes in the field.	5	4	3	2	1
Students have a strong understanding of Sonography concepts upon graduating.	5	4	3	2	1
Equipment used in labs is representative of equipment being used in the clinical environment.	5	4	3	2	1
Students and sites display enthusiasm for the program.	5	4	3	2	1
The advisory committee is utilized appropriately for input on program improvement.	5	4	3	2	1
There is appropriate communication between the programs communities of interest.	5	4	3	2	1
The faculty is meeting the needs of the students.	5	4	3	2	1

1). What do you feel are the future trends in Sonography in the next 10 years?

_____
_____
_____.

2). What are the programs strengths?

_____
_____
_____.

3). What areas does the program need to improve upon?

_____
_____
_____.

4). What important issues do you feel the program needs to address immediately?

_____
_____
_____.

Thank You for taking the time to fill out this survey. Any suggestions you have are greatly appreciated.

Administrative Program Review Program: **Diagnostic Medical Sonography**
12/15/2005

Purpose of Administrative Program Review

1. to facilitate a process led by the deans and department heads/chairs to assess and evaluate programs under their supervision
2. to facilitate long term planning and recommendations to the VPAA
3. to collect and analyze information that will be useful in the University's accreditation efforts; Academic Program Review deliberation; and assessment.

Instructions: Please prepare a report following the outline below.

I. Summary of Modifications since last report:

Please provide a brief summary of the changes that have taken place in the program since the last report.

A second FTE tenure track faculty member was hired in July 2005 to serve as clinical coordinator. Now that the program has identified a clinical and program coordinator, it is eligible to write the self study for the JRCDMS and seek specialized program accreditation.

II. Program Assessment/Assessment of Student Learning

A. What are the program's learning outcomes?

As a competency-based program, the outcomes are for the student to:

1. Complete a series of ultrasound examinations without assistance in an appropriate time period.
2. Obtain appropriate images to represent normal and abnormal anatomy for a billable complete exam.
3. Use correct instrumentation to represent accurate anatomy and pathology.
4. Use color Doppler to correctly identify and differentiate normal from abnormal vasculature.
5. Demonstrate the ability to achieve accurate ultrasound images using the highest transducer possible, the shortest scan time possible to minimize ultrasound exposure to the patient.
6. Demonstrate a skill level that is consistent with an entry level practicing Sonographer.

B. What assessment measures are used, both direct and indirect?

Direct:

- Registry Exam pass rates

Indirect:

- Student, faculty and clinical instructor perception surveys
- Program Retention Rates
- Program Accreditation Status
- Job Placement Rates

C. What is the assessment cycle for the program?

Data is collected each year for Registry exam pass rates, Program attrition/retention and Job Placement rates. Satisfaction Surveys are conducted in conjunction with Academic Program Review and Accreditation.

D. What assessment data were collected in the past year?

New AART Registry Pass Rate measurement: Students are now eligible for the AART credentialing exam immediately upon graduation. The first group of students took the exam July 2005 with a 67% pass rate.

ARDMS Registry Pass Rate measurement: It should be noted that ARDMS registry pass rates cannot be measured for a graduation cohort for at least one year after program completion, as most are required to have 12 additional months of scanning time prior to sitting for the registry, in view of the fact that the program is not yet accredited. Therefore, rates for 2005 graduates are not yet available. It is also noted that the ARDMS does not send reports to programs regarding graduate's status with the registry exam.

Program Retention:

- 22 students admitted F03; 16 students completed by W05 = 27% projected attrition rate

E. How have assessment data been used for programmatic or curricular change?

It was clearly evident that the high attrition rates could be directly related to lack of academic preparation for the program, specifically in the areas of math competency and scientific understanding. As a result, the program underwent a curriculum revision in the 2003-04 AY, which significantly increased the admission criteria in these areas and added program pre-requisites to be completed prior to entry into the professional sequence. In addition, a third semester of internship was added to the curriculum. The first cohort to be admitted under these new criteria will begin the program in the Fall 2005 semester.

III. Course Outcomes Assessment

A. Do all multi-sectioned courses have common outcomes?

YES – a lead instructor typically teaches most if not all of the lab sections that are part of the course or that faculty member provides oversight for other faculty who may be teaching some of the sections.

B. If not, how do you plan to address discrepancies?

C. How do individual course outcomes meet programmatic goals?

The disciplinary content areas are clearly delineated by the accreditation body so that

the collective courses all contribute to the attainment of the program goals. All required areas of content are included in the program. The program is currently in the process of making application for initial accreditation.

IV. Program Features

A. Advisory Board

1. Does the program have a board/committee? **YES** When did it last meet? **Fall 2005** When were new members last appointed? **Fall 2004** What is the composition of the committee (how many alumni, workplace representatives, academic representatives, etc.)

   All members are sonographers from the clinical affiliates (work place) at this time. None are alumni in view of the newness of the program. It is anticipated that at least one alumnus may be joining the advisory committee in the upcoming year.

2. If no advisory board exists, please explain by what means faculty receive advice from employers and outside professionals to inform decisions within the program.

3. Has feedback from the Advisory Board affected programmatic or curricular change?
   The advisory committee has been closely involved in programmatic evaluation and revision. The additional semester of internship was a very strong recommendation of the DMS consultant that visited campus in the 2003-04 AY and was then strongly supported by the Advisory Committee, based on their perception that students would benefit from additional clinical experience.

   Advisory committee members were consulted at the Fall 2005 meeting and provided input on the expectations and suggested order of masteries during clinical internship.

B. Internships/Cooperative or Experiential Learning

1. Is an internship required or recommended?
   Required – 3 semesters, 40 hours / week are currently required.

2. If the internship is only recommended, what percentage of majors elect the internship option?

3. What challenges does the program face in regard to internships? What is being done to address these concerns?
   As with the other imaging science programs, competition from other programs is the primary challenge, but it is even more pronounced for DMS because a smaller number of techs are employed in any agency, limiting the availability of ACIs for the program. In addition, the fact that the program is not yet accredited has resulted in some agencies declining the opportunity to have a FSU student until accreditation is attained.

4. Do you seek feedback from internship supervisors ?
Yes, as noted these individuals comprise the program's advisory committee.

If so, does that feedback affect pedagogical or curricular change?
Yes, as noted above. The current program changes were the direct result of feedback from this group.

FSU DMS outcomes	Measured by:
To produce graduates who will be able to communicate effectively to acquire, develop and convey ideas in diagnostic medical sonography	On campus case study presentations. Employer and clinical instructor surveys. Both employers and clinical instructors report a high level of communication by Ferris graduates.
To produce graduates who will practice their profession adhering to the ethical, legal, and professional conduct expected of a diagnostic medical sonographer	Employer and clinical instructor surveys. Both employer and instructor surveys report high levels of professionalism and ethical behavior from FSU graduates.
To produce competent entry-level practicing sonographers	On campus mock registry final exam, employer and clinical instructor surveys, and employment rates. Employers are very happy with FSU DMS graduates. Clinical instructors hire FSU graduates on a regular basis, employment rate for the program are between 86% and 100%.
To produce graduates who will be able to utilize the knowledge and clinical competencies required to provide current, comprehensive diagnostic medical sonography	Employer survey results, ARDMS exam pass rates. Employers report DMS graduates have the skills needed to provide current effective comprehensive sonography. Students are passing ARDMS exams at a rate higher than the national average.
To produce graduated who can evaluate and interpret ultrasound films using critical thinking.	On campus case study exam results. Clinical instructor and employer survey results, ARDMS exam pass rates. On campus demonstration of film evaluation is demonstrated at 80% or higher. Employer and clinical instructors report high levels of interpretation skills; ARDMS pass rates are higher than the national average.

Form D new Checksheet

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Diagnostic Medical Sonography – Associate in Applied Science
Proposed CURRICULUM PLAN / CHECKSHEET

Prerequisites:

BIOL 109	Basic Human Anatomy & Physiology	4 ____
PHYS 130	Concepts of Physics	4 ____
Required competencies:		8

Medical Vocabulary Proficiency (C or better in MRIS 102 or proficiency test) _____
Math Competency (Math ACT score of 24 or "C" or better in Math 115) _____
English Competency ("C" or better in ENGL 150) _____
Computer Competency (competency is shown through program coursework) _____

FIRST YEAR

Fall Semester

CCHS 101 Orientation to Health Care	3 ____
PSYC 150 Introduction to Psychology	3 ____
SONO 100 Introduction to DMS	1 ____
SONO 102 Introduction to Sono. Imaging	1 ____
SONO 104 Introduction to Sono. Physics	3 ____
SONO 105 Sonography physics lab	1 ____
	12

Winter Semester

CHCS 102 Safety Issues in Health Care	1 ____
CCHS 103 Clinical Skills	1 ____
SONO 111 Sono. Pathophys. of Abdominal Organs	3 ____
SONO 112 Abdominal Imaging Lab	1 ____
SONO 115 Sono. Cross Sectional Anatomy	1 ____
SONO 117 Introduction to Sono. Interpretation	2 ____
ENGL 250 English 2	3 ____
	12

Summer Semester

*COMM 105 Interpersonal Communication
OR

COMM 221 Small Group Decision Making	3 ____
HUMN 220 Ethics in Healthcare	
OR	
HUMN 320 Biomedical Ethics	3 ____
SONO 121 Introduction to OB/GYN Imaging	3 ____
SONO 122 OB/GYN Imaging Lab	1 ____
SONO 131 Hemodynamics and Doppler Principles	1 ____
SONO 132 Hemodynamics and Doppler Lab	1 ____
	12

SECOND YEAR

Fall semester

SONO 280 Clinical Internship I	8 ____
SONO 281 Small Parts and Invasive Procedures	4 ____
	12

Winter Semester

SONO 282 Clinical Internship II	8 ____
SONO 283 OB/GYN Imaging II	4 ____
	12

Summer Semester

SONO 284 Clinical Internship III	8 ____
SONO 285 Sono Interpretation II	4 ____
	12

80 hours needed for graduation _____

A grade of C or better is required for all courses on the Checksheet and FSUS 100
An overall GPA of 2.0 or better is required for graduation.
All general education and program classes must be completed before entering Sono 280.

MRIS 102, Math 115, and Engl150 equivalency or proficiency is required as prerequisite to professional sequence.
Due to limited Clinical placements grades below a "C" in SONO classes may not be repeated

Form D: Proposed

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Diagnostic Medical Sonography – Associate in Applied Science
Advising Checksheet – for students entering Fall 2007

Name:_____ **Student ID #:**_____

REQUIRED		COURSE TITLE – PREREQUISITES IN ( )	CRED	GRADE	REQ. MET
DMS MAJOR: 54 CREDITS REQUIRED					
SONO	100	Introduction to DMS (PHYS 130, BIOL 109, MRIS 102)	1		
SONO	102	Intro. to Sono. Imaging (admission to professional sequence)	1		
SONO	104	Intro. to Ultrasound Physics (admission to professional sequence)	3		
SONO	105	Sono. Physics lab (admission to professional sequence)	1		
SONO	111	Sonographic Pathophysiology of Abdominal Organs(SONO 100, 102, 104, 105)	3		
SONO	112	Abdominal Imaging lab (SONO 100, 102, 104, 105)	1		
SONO	115	Sono Cross Sectional Anatomy (SONO 100, 102, 104, 105)	1		
SONO	117	Intro. to Sono. Interpretation (SONO 100, 102, 104, 105)	2		
SONO	121	Intro. to OB/GYN Imaging (SONO 111, 112, 115, 117)	3		
SONO	122	OB/GYN Imaging Lab (SONO 111, 112, 115, 117)	1		
SONO	131	Hemo. and Doppler Principles (SONO 111, 112, 115, 117)	1		
SONO	132	Hemo. and Doppler Lab (SONO 111, 112, 115, 117)	1		
SONO	280	Clinical Internship 1 (SONO 121, 122, 131, 132)	8		
SONO	281	Small Parts and Invasive procedures (SONO 121,122,131,132)	4		
SONO	282	Clinical Internship II (SONO 280, 281)	8		
SONO	283	OB/GYN Imaging II (SONO 280,281)	4		
SONO	284	Clinical Internship III (SONO 282,283)	8		
SONO	285	Sonographic Interpretation II (SONO 282, 283)	4		
Communication Competence 6 credits required					
ENGL	250	English 2 (Engl 150 grade C or higher)	3		
COMM	105 or 221	Interpersonal communication (none) Small group decision making (none)	3		
SCIENTIFIC UNDERSTANDING: 8 CREDITS REQUIRED					
BIOL	109	Basic Human Anatomy & Physiology (none)	4		
PHYS	130	Concepts of Physics (Math 110 C- or 19 ACT or 460 SAT)	4		
QUANTITATIVE SKILLS: PROFICIENCY OR COURSE REQUIRED					
		ACT – Math subscore of 24 or higher or MATH 115 grade of C			
		ENGL 150 grade of C or competency			
SOCIAL AWARENESS: 3 CREDITS REQUIRED					
ELEC		Social Awareness Elective – 200 level or higher	3		
CULTURAL ENRICHMENT: 3 CREDITS REQUIRED					
ELEC		Cultural Enrichment Elective	3		

CAHS CORE REQUIREMENTS: 5 CREDITS REQUIRED					
CCHS	101	Orientation to Health Care (none)	3		
CCHS	102	Safety Issues in Health Care (none)	1		
CCHS	103	Clinical Skills (none)	1		
OTHER REQUIREMENTS					
		Computer Competency – Course or proficiency			
		A grade of C or better is required for all courses on the Checksheet and FSUS 100			
		An overall GPA of 2.0 or better is required for graduation.			
		All general education and program classes must be completed before entering Sono 291.			
		MRIS 102, Math 115, and Engl150 equivalency or proficiency is required as prerequisite to professional sequence			
		Due to limited Clinical placements grades below a "C" in SONO classes may not be repeated			
		TOTAL PROGRAM CREDITS	**80**		
Students who return to the University after an interrupted enrollment (not including summer semester) must meet the requirements which were in effect when they were originally admitted.					

Academic Advisor:_____ Date of Initial Evaluation:_____

Student Signature:_____ Date:_____

Graduation Clearance Form Complete:_____ Date:_____

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Diagnostic Medical Sonography – Associate in Applied Science
Current CURRICULUM PLAN / CHECKSHEET

Prerequisites:

*BIOL 109	Basic Human Anatomy & Physiology	4 ____
*PHYS 130	Concepts of Physics	4 ____
		8
**Medical Vocabulary Proficiency		____
***Math Competency		

FIRST YEAR

Fall Semester

		Grade
*CCHS 101	Orientation to Health Care	3 ____
*ENGL 150	English 1	3 ____
PSYC 150	Introduction to Psychology	3 ____
*SONO 100	Introduction to DMS	1 ____
*SONO 101	Sono. Principles & Instrumentation	4 ____
		14

Winter Semester

*CCHS 102	Safety Issues in Health Care	1 ____
*CCHS 103	Clinical Skills	1 ____
*ENGL 250	English 2	3 ____
MRIS 210	Fundamentals of Medical Science	3 ____
*SONO 110	Abdominal and Small Parts	4 ____
*SONO 115	Sono. Cross Sectional Anatomy	1 ____
		13

Summer Semester

*COMM 105	Interpersonal Communication	3 ____
OR		
*COMM 221	Small Group Decision Making	
HUMN 220	Ethics in Healthcare	3 ____
OR		
HUMN 320	Biomedical Ethics	
*SONO 120	Obstetric & Gynecological Sono.	4 ____
*SONO 130	Hemo., Doppler & Color Flow	2 ____
		12

SECOND YEAR

Fall Semester

		Grade
*SONO 291	Clinical Practicum 1	12 ____
		12

Winter Semester

*SONO 292	Clinical Practicum 2	12 ____
		12

Summer Semester

*SONO 293	Clinical Practicum 3	9 ____
		9
CAHS Computer Competency Requirement		____

* A grade of C or better is required for all SONO courses, BIOL 109, PHYS 130, MATH 115, and CAHS Core Curriculum.
An overall GPA of 2.0 or better is required for graduation.
All general education and program classes must be completed before entering Sono 291.

** MRIS 102, equivalency or proficiency is required as prerequisite to professional sequence.

*** MATH 115, equivalency or proficiency (MATH ACT subscore of 24 or better) required for admission.

80 semester hours required for graduation

Form D: Current

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
Diagnostic Medical Sonography – Associate in Applied Science
Advising Checksheet – for students entering Fall 2005

Name:_____ **Student ID #:**_____

REQUIRED		COURSE TITLE – PREREQUISITES IN ( )	CRED	GRADE	REQ. MET
DMS MAJOR: 49 CREDITS REQUIRED					
SONO	100	Introduction to DMS (PHYS 130, BIOL 109, MRIS 102)	1		
SONO	101	Sono Prin. & Instrum. (PHYS 130, BIOL 109, MRIS 102)	4		
SONO	110	Abdominal and Small Parts (SONO 100, 101)	4		
SONO	115	Sono Cross Sectional Anatomy (SONO 100, 101)	1		
SONO	120	Obstetric & Gynecologic Sono (SONO 110, 115)	4		
SONO	130	Hemo, Doppler & Color Flow (SONO 110, 115)	2		
SONO	291*	Clinical Practicum 1 (SONO 120, 130)	12		
SONO	292	Clinical Practicum 2 (SONO 291)	12		
SONO	293	Clinical Practicum 3 (SONO 292)	9		
COMMUNICATION COMPETENCE: 9 CREDITS REQUIRED					
ENGL	150	English 1 (ENGL 074 or 14 ACT or 370 SAT score)	3		
ENGL	250	English 2 (ENGL 150 grade of C- or higher required)	3		
COMM	105 or 221	Interpersonal Communication (none) Small Group Decision-making (none)	3		
SCIENTIFIC UNDERSTANDING: 8 CREDITS REQUIRED					
BIOL	109	Basic Human Anatomy & Physiology (none)	4		
PHYS	130	Concepts of Physics (Math 110 C- or 19 ACT or 460 SAT)	4		
QUANTITATIVE SKILLS: PROFICIENCY OR COURSE REQUIRED					
		ACT – Math subscore of 24 or higher or MATH 115 grade of C			
SOCIAL AWARENESS: 3 CREDITS REQUIRED					
PSYC	150	Introduction to Psychology (Read ACT 17 or Verbal SAT 430)	3		
CULTURAL ENRICHMENT: 3 CREDITS REQUIRED					
HUMN	220 OR 320	Ethics in Healthcare (none) Biomedical Ethics (ENGL 150)	3		
CAHS CORE REQUIREMENTS: 5 CREDITS REQUIRED					
CCHS	101	Orientation to Health Care (none)	3		
CCHS	102	Safety Issues in Health Care (none)	1		
CCHS	103	Clinical Skills (none)	1		
OTHER REQUIREMENTS					
MRIS	210	Fundamentals of Medical Science (MRIS 102 or 103)	3		
		Medical Terminology Competency or MRIS 102			
		Computer Competency – Course or proficiency			
		TOTAL PROGRAM CREDITS	**80**		

Students who return to the University after an interrupted enrollment (not including summer semester) must meet the requirements which were in effect when they were originally admitted.

A grade of "C" or better is required for prerequisite courses, CAHS Core Curriculum, and all SONO courses. SONO courses may be repeated once in the next available semester in the program on a space available basis.

Academic Advisor:_____ Date of Initial Evaluation:_____

Student Signature:_____ Date:_____

Graduation Clearance Form Complete:_____ Date:_____

* All general education and program classes must be completed before entering Sono 291.

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SONO 100
INTRODUCTION TO DIAGNOSTIC MEDICAL SONOGRAPHY
FALL SEMESTER, 2005

GENERAL OBJECTIVES: Upon completion of this course the students will have an understanding of the Diagnostic Medical Sonography Profession. The history of Sonography, its professional organizations, credentialing, scope of practice, terminology, and professional responsibilities will be discussed.

CLASS SCHEDULE: Wednesdays 9:00 – 9:50 am VFS 326a

INSTRUCTOR:
Michelle Weemaes BS RDMS RVT
Diagnostic Medical Sonography Program Director
Phone: (231) 591-3071 Fax: (231) 591-3788
weemaesm@ferris.edu room VFS 411

OFFICE HOURS:
Monday 8:15 pm - 10:00 pm
Thursday 9:00 am – 11:00 am
Also available by appointment.

REQUIRED TEXT: No required text. Instructor handouts will be given.

ATTENDANCE: Each student will be expected to attend **every** scheduled lecture/lab session. There will be a "**ZERO TOLERANCE**" policy for **unexcused absences.** Documentation is required for an absence to be excused. The documentation must be provided to the instructor by **no** later than before the start of the class session, upon your return. Late documentation will **NOT** be accepted.

For every two (**2**) hours **deemed unexcused** a **5%** grade **reduction** will be applied. It is your responsibility to provide documentation of your absences. Sleeping in class will be considered an absence.
If you are five (**5**) minutes or more **late** for class, you are **tardy**. **Tardiness** in excess of two (**2**) will be handled in

the same manner as excessive absenteeism. For every 3 tardies you will receive 5% reduction in your grade. If you miss a lecture/lab session, **you are responsible** for obtaining the missed material. The student is responsible for tracking his/her own absences.

GRADING AND EVALUATION:

Final grades for SONO 100 will be based on the student's performance. Make-up tests/quizzes **may** be given at the instructor's discretion, but only with a fully documented excuse. Documentation must be received before the next class meeting. Tests must be taken within one week of the date the exam was given. Individual quizzes must be made up **before the start of the next class session with documentation of the excused absence.** Late assignments or other work (papers, etc.) will **NOT** be accepted.

Grades will be based on the following:

Quizzes @ 25points each x 4	100 points
Midterm exam	100 points
Ethics presentation	50 points
Final Exam	100 points
Total possible	350 points

GRADING SCALE:

100-95%	A	76.9-74%	C
94.9-90%	A-	73.9-70%	C-
89.9-87%	B+	69.9-67%	D+
86.9-83%	B	66.9-63%	D
82.9-80%	B-	62.9-60%	D-
79.9-77%	C+	< 60%	F

***A passing grade of a C must be obtained in order to progress into Sono 110 and Sono115.**

CLASS PARTICIPATION:

You will be expected to be attentive and participatory during the class sessions. You will be expected to act professionally in class. This includes no swearing or disrespect in class. 100% attendance for lab is required.

ACADEMIC DISHONESTY:

Refer to the Academic Dishonesty Policy found in the student's University Handbook. Cheating and disciplinary problem will be dealt with through the student judicial services.

Professional and ethical behavior: professional behavior is expected in all classroom and lab settings. You will receive 1 written warning of unprofessional behavior. The second notice of unprofessional behavior will result in a 5% reduction in your overall grade. A third notice of

unprofessional behavior will result in a dismissal of the program. Examples of unprofessional behavior include but are not limited to: not working cooperatively with classmates, swearing, and disrespect of anyone in class, inappropriate lab attire, and inappropriate use of any lab equipment or supplies (malicious behavior).

****THE SYLLABUS, LECTURE OUTLINE AND LAB OUTLINE ARE SUBJECT TO CHANGE AT ANY TIME BY THE INSTRUCTOR.*

I agree to uphold the terms of this syllabus for Sono 101. I understand that my grade will be reduced due to attendance, and/or behavioral issues. I understand I need a C or better in this course to progress in this program.

Name_____ **date**_____

I agree to uphold the terms of this syllabus for Sono 101. I understand that my grade will be reduced due to attendance, and/or behavioral issues. I understand I need a C or better in this course to progress in this program.

Name_____ **date**_____

*****THE SYLLABUS, LECTURE OUTLINE AND LAB OUTLINE ARE SUBJECT TO CHANGE AT ANY TIME BY THE INSTRUCTOR.**

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SONO 110
ABDOMINAL SONOGRAPHY

WINTER SEMESTER, 2006

GENERAL OBJECTIVES:

Upon completion of this course, the student will be able to describe the anatomic and physiologic relationships of body systems relative to Sonography, describe normal Sonographic appearance of individual organs, list differentials for disease processes that are represented as abnormal, demonstrate proper patient positioning for standard exam protocols, demonstrate proper transducer selection, and equipment settings for real time equipment and perform accurate and appropriate measurement techniques.

CLASS SCHEDULE:

LECTURE:	Tuesday	12:00 – 1:15 pm	VFS 420
	Thursday	12:00 - 1:15 pm	VFS 420
LAB	Tuesday	9:00 – 10:50 am	VFS 321
	Tuesday	2:00 – 3:50 pm	VFS 321
	Thursday	2:00 – 3:50 pm	VFS 321

Open labs available for additional scanning experience:
Immediately following Tuesdays lab 4:00-4:45 pm
Wednesday 11-1 pm
Immediately following Thursday lab 4:00-5:00pm
***ALUMNI RETURN DAY April 7, 8am-3pm** Mandatory participation required

INSTRUCTOR:

Michelle Weemaes BS, RDMS, RVT
Diagnostic Medical Sonography, Program Director
VFS 411
Office (231) 591-3071
weemaesm@ferris.edu

OFFICE HOURS

Wednesday: 9:00 am- 11:00 am
Thursday: 9:00 am- 11:00 am
*Mondays and Fridays by appointment
Questions about lecture material must be addressed during office hours NOT on Tuesdays and Thursdays between 11:00 and 12:00.

REQUIRED TEXTS: text is required by January 12TH!!!!!!
Diagnostic Ultrasound, 3rd edition, Rumack, Wilson, Charboneau ISBN 0-323-02023-2
Recommended text: Ultrasound Scanning: Principles and protocols, Betty Bates Tempkin, ISBN 07121668798

CLASS ROOM/LAB ATTENDANCE:

Each student will be expected to attend every scheduled lecture/lab session. There will be a "ZERO TOLERANCE" policy for unexcused absences. **Documentation is required for an absence to be excused.** The documentation must be provided to the instructor no later than before the start of the class session upon which you return. **Late documentation will not be accepted.** For two (2) hours deemed unexcused, a 5% grade reduction will be applied. Three (3) unexcused absences will result in failure of the class. Unexcused Lab absences that are made up are still counted as absences. It is your responsibility to provide documentation of your absences. Sleeping in class will be considered an absence. If you are ten (10) minutes or more late for class, you are tardy. Every 2 Tardies (2) will equal 1 absence if you miss a lecture/lab session; **you** are responsible for obtaining the missed material. Missed quizzes will not be allowed to make up even for excused absences. *An Attendance sheet will be passed around at every class and lab session, it is your responsibility to sign the attendance sheet. Reading outlines may equal your attendance grade for a given day, if you are in class without the reading outline you will be marked absent.

GRADING AND EVALUATION:

Final grades for SONO 110 will be based upon the student's performance. Your final grade will have two separate components including classroom and a lab grade. **You must pass both components to progress and pass the class**. Tests that are missed must be made up, as soon as possible, before the next scheduled class time. Individual quizzes may not be made up. Case studies will be accepted late with documentation for reduced credit. The classroom grade will be calculated as follows:

CLASSROOM GRADING SYSTEM:

FINAL EXAM	200 POINTS
TWO MIDTERM EXAMS	200 POINTS (100 POINTS EACH)
READING QUIZZES x 8	200 (25 POINTS EACH)
CASE STUDY	50 POINTS
TOTAL POSSIBLE POINTS	650 POINTS

GRADING SCALE:

100-95%	A	76.9 - 75%	C
94.9 - 90%	A-	74.9 - 70%	C-
89.9 - 87%	B+	69.9 - 67%	D+
86.9 - 85%	B	66.9 - 65%	D
84.9 -80%	B-	64.9 - 60%	D-
79.9 - 77%	C+	< 60%	F

* 488 points = 75% needed to progress in the program

LAB GRADING SYSTEM:

Attendance	100% lab attendance is **required** All missed lab hours must be made up!
Scan Evaluations	Competency in 5 scanning labs must be demonstrated
Practical Examination	a scanning practical exam must be passed
Professional behavior	professional behavior will be assessed daily 1st unprofessional behavior = warning 2nd unprofessional behavior = 10% grade reduction 3rd unprofessional behavior = dismissal from the DMS program

LAB GRADING SCALE

Pass of Fail
A pass grade = 100 attendance
Professional behavior
Pass grade in 5 scan labs
Pass grade in lab final

***The aforementioned grade scale reflects the percentages necessary to pass the ARDMS Abdominal and Small Parts Board Certifying Examination. "C" or better is required to advance to SONO 120 and 130.**

CLASS PARTICIPATION:

You will be expected to be attentive and participatory during class sessions. You will be expected to act professionally and respectably in class. This includes no swearing or disrespect.

ACADEMIC DISHONESTY:

Refer to the Academic Dishonesty Policy found in the Student's University Handbook.

THE SYLLABUS, LECTURE OUTLINE, AND LAB OUTLINE ARE SUBJECT TO CHANGE AT ANY TIME BY THE INSTRUCTOR. (rev. 01.21.03)

I agree to uphold the terms of this syllabus for Sono 1110. I understand that my grade will be reduced due to attendance, and/or behavioral issues. I understand I need a C or better in this course to progress in this program.

Name_____ date_____

I agree to uphold the terms of this syllabus for Sono 110. I understand that my grade will be reduced due to attendance, and/or behavioral issues. I understand I need a C or better in this course to progress in this program.

Name_____ date_____

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SONO 115
ABDOMINAL SONOGRAPHY

WINTER SEMESTER, 2006

GENERAL OBJECTIVES:

Upon completion of this course, the student will be able to describe the anatomic and physiologic relationships of body systems relative to Sonography, describe normal Sonographic appearance of individual organs, recognize normal anatomy, and normal relationships within the abdomen. The student will be able to demonstrate normal anatomy in 2-D, 3-D, and in a sonographic cross section within the body.

CLASS SCHEDULE:

LECTURE: Thursday 10:00 – 10:50 am VFS 420

INSTRUCTOR:

Sonya Knoll, BAS, RDMS
Diagnostic Medical Sonography Clinical Coordinator
VFS 408
Office (231) 591-2725
Beeper (231) 416-0154
knolls@ferris.edu

OFFICE HOURS

Thursday: 8:30am-9:30am
Friday: 1:30pm-3:30am
(Other times available by appointment only)

REQUIRED TEXT: text is required by January 16TH!!!!!!
Sonography Introduction to Normal Structure and Function, Reva Curry and Betty Bates Tempkin, Published by Saunders, ISBN: 0-7216-9780-1
Workbook is required!!!!!

CLASS ROOM ATTENDANCE:

Each student will be expected to attend every scheduled lecture session. There will be a "ZERO TOLERANCE" policy for unexcused absences. Documentation is required for an absence to be excused. The documentation must be provided to the instructor by no later than before the start of the class session upon which you return. Late documentation will not be accepted. For every two (2) hours deemed unexcused, a 5% grade reduction will be applied. It is your responsibility to provide documentation of your absences. Sleeping in class will be considered an absence. Students who arrive more than ten (10) minutes late for class will be marked tardy. Tardiness in excess of two (2) will be handled in the same manner as excessive absenteeism. If you miss a lecture/lab session, **you** are responsible for obtaining the missed material. Missed quizzes will not be allowed to make up even for excused absences. *An Attendance sheet will be passed around at every class and lab session, it is your responsibility to sign the attendance sheet.

GRADING AND EVALUATION:

Final grades for SONO 115 will be based upon the student's performance. Your final grade will consist of quiz, test and poster presentation grades. Tests that are missed must be made up, as soon as possible, before the next scheduled class time. Individual quizzes may not be made up. Papers, posters will be accepted late with documentation for reduced credit. The classroom grade will be calculated as follows:

GRADING SYSTEM:

FINAL EXAM	200POINTS
2 MIDTERM EXAMS	200 POINTS (100 POINTS EACH)
READING QUIZZES x 8	200 (25 POINTS EACH)
ANATOMY VARIANT POSTER	100 POINTS
TOTAL POSSIBLE POINTS	700 POINTS

GRADING SCALE:

100-95%	A	76.9-75%	C
94.9-90%	A-	74.9-70%	C-
89.9-87%	B+	69.9-67%	D+
86.9-84%	B	66.9-64%	D
83.9-80%	B-	63.9-60%	D-
79.9-77%	C+	< 60%	F

* 525 points = 75% needed to progress in the program

***The aforementioned grade scale reflects the percentages necessary to pass the ARDMS Abdominal and Small Parts Board Certifying Examination. "C" or better is required to advance to SONO 120 and 130.**

CLASS PARTICIPATION:

You will be expected to be attentive and participatory during class sessions. You will be expected to act professionally and respectably in class. This includes no swearing or disrespect.

ACADEMIC DISHONESTY:

Refer to the Academic Dishonesty Policy found in the Student's University Handbook.

THE SYLLABUS, LECTURE OUTLINE, AND LAB OUTLINE ARE SUBJECT TO CHANGE AT ANY TIME BY THE INSTRUCTOR. (rev. 01.21.03)

FERRIS STATE UNIVERSITY
COLLEGE OF ALLIED HEALTH SCIENCES
DIAGNOSTIC MEDICAL SONOGRAPHY PROGRAM

SONO 291, SONO 292 SONO 293
Clinical Practicum
Fall, Winter, and Summer Semesters

GENERAL OBJECTIVES: Upon completion of SONO 293, the students will have demonstrated ability to:

- Perform entry level ultrasound exams.
- Provide basic patient care and comfort
- Demonstrate knowledge of human gross and sectional anatomy
- Demonstrate knowledge of physiology, pathology, and pathophysiology
- Demonstrate knowledge of ultrasound physics and instrumentation
- Employ professional judgment and discretion

CLASS SCHEDULE: Students are expected to log the following clinical hours:

Fall Semester:	576 + 24 (holiday) = 600 hours
Winter semester:	576 + 24 (holiday) = 600 hours
Summer semester:	456 + 24 (holiday) = 480 hours
Total hours	1608 + 72 (holiday) =1680 hours

The exact working shift is determined by the Clinical Site, The clinical hours cannot exceed 40 per week. Clinical Students follow the posted Ferris State academic calendar as included in the clinical manual.

INSTRUCTOR:

Sonya Knoll, BAS, RDMS
Diagnostic Medical Sonography, Clinical Coordinator
VFS 408
(231) 591-2725
(231) 598-1112 Cell
Knolls@ferris.edu
For emergencies please contact Tina Smith, department Administrative assistant at 231-591-2261.

OFFICE HOURS Posted each semester

REQUIRED MATERIALS: 1) Lab Coat or site specific dress code
2) Clinical Handbook (to be kept at the clinical site as a resource for both the student and the ACI at all times)
3) E-mail address and computer access
4) Positive attitude

REQUIRED TEXTS:

Diagnostic Ultrasound: Second Edition. Volumes One and Two. Carol M. Rumack, Stephanie R. Wilson, and J. William Charboneau. Mosby, 1998.

ULTRASONOGRAPHY: An Introduction to Normal Structure and Functional Anatomy. Reva Arnez Curry and Betty Bates Tempkin

EXERCISES IN ULTRASONOGRAPHY: An Introduction to Normal Structure and Functional Anatomy. Reva Arnez Curry and Betty Bates Tempkin

ATTENDANCE:

Each student will be expected to attend every scheduled clinical day. There will be a **"ZERO TOLERANCE"** policy for unexcused absences. Documentation is required for an absence to be excused. The documentation must be provided to the instructor by no later than before the start of the class session upon which you return. Completion of the 576 hours per semester is required for final grade each semester. Students are expected to be in their assigned areas at the beginning of their shift ready for work. Tardies must be made up and will count against you grade. Please see clinical policies.

ARDMS standards require 8 ½ worked hours in clinical to receive credit for 8 hours of clinical experience. Skipping meals is not permitted for hours calculation. IE: if you work 8 hours without a break only 7 1/2 hours will count, so take your lunch and breaks as scheduled.

GRADING AND EVALUATION:

Final grades for SONO 291, SONO 292 and SONO 293 will be based upon the student's performance. Required competencies must be completed at 90% or better, passing scanning skills sheet at midterm, Web CT assignments, case study, presentation, and final exam will make up the total points for this semester.

GRADING SCALE:

1000-979.9 points	100-97.9%	A	799.9-769.9 points	79.9-76.9%	C
969.9-949.9 points	96.9-94.9%	A-	759.9-739.9 points	75.9-73.9%	C-
939.9-909.9 points	93.9-90.9%	B+	729.9-709.9 points	72.9-70.9%	D+
899.9-879.9 points	89.9-87.9%	B	699.9-669.9 points	69.9-66.9%	D
869.9-849.9 points	86.9-84.9%	B-	659.9-619.9 points	65.9-61.9%	D-
839.9-809.9 points	83.9-80.9%	C +	< 618.9%		F

***The aforementioned grade scale reflects the percentages necessary to pass the ARDMS Abdominal and Small Parts Board Certifying Examination. "C" or better is required to advance from SONO 291 to SONO 292to SONO 293.

POINTS AVAILABLE IN COURSE

*Required competencies=	400 points
Scanning Skills Sheets =	100 points
**Web Ct assignments=	200 points
Final project=	100 points
Final exam=	200 points
Total points available=	1000 points

To receive the final grade each clinical semester the required paperwork documenting hours, masteries, and all assignments must be in receipt of the Clinical Coordinator. See the end of semester check sheet in the clinical manual.

To progress from SONO 291 to SONO 292 and from SONO 292 to SONO 293, the student must have a C or better in the didactic WEBCT assignments case study, presentation and final exam. In addition they MUST complete the *Required competencies. *Required competencies are graded as a whole. 100% completion is required for a grade. All competencies must be passed with a grade of 90% or better to progress to the next level of internship. At the discretion of the ACI and Program Coordinator, if the student is close to completing the required competencies and shows acceptable improvement of skills, progression to SONO 292 or SONO 293 may be negotiated. At the end of SONO 293 all required competencies as well as a grade of C or better must be obtained for graduation.

PROGRESSION POLICY

An Intern must receive a grade of "C" or better and maintain a cumulative GPA of 2.0 and complete the required masteries to progress and graduate. A grade of less than a "C" in an internship will exclude the intern from repeating the internship at a later time.

CLASS PARTICIPATION:

** Web CT participation is required. For every web CT assignment not turned in this will count as an absence. Starting with the 2nd absence or non participation in Web CT the student's final grade will be reduced by 5% per assignment missed. It is expected that each student will log on a minimum of twice a week to Web CT.

ACADEMIC DISHONESTY:

Any hours or assignment, including required masteries, falsified by the student or clinical site will constitute cheating and will result in the failure of the class. Refer to the Academic Dishonesty Policy found in the Student's University Handbook.

THE SYLLABUS, LECTURE OUTLINE, AND LAB OUTLINE ARE SUBJECT TO CHANGE