Oregon Institute of Technology
Medical Imaging Technology Department
Vascular Technology Program Assessment
2009-2010

I. Introduction

The Vascular Technology Program began in 1992 and is one of the five current on-campus Medical Imaging programs at Oregon Institute of Technology. Enrollment trends from 2002 – 2009 have varied from 59 to 89 students per year in the program. For the year 2009 – 2010, there are 59 students enrolled in the program. From the beginning of the program to the end of spring term, 2009, the average retention rate in the Vascular Technology program has been 77.3%. In the 2005 cohort of students that graduated in 2008, retention was 87%. The job placement for the class of 2007 was 83%, and the remaining 17% were attempting to find jobs on the West Coast. The median salary for the graduates of the class of 2008 was $59,000 per year.

II. Program Purpose, Objectives and Student Learning Outcomes

The Vascular Technology faculty met one time formally and multiple times informally during fall 2009 and agreed to affirm the student learning outcomes as suggested by the programmatic accrediting body known as the, "Joint Review Committee of Diagnostic Medical Sonography." The final version is listed below.

Vascular Technology Program Purpose

The Bachelor of Science program in Vascular Technology provides students with the knowledge, clinical skills and behaviors to become competent vascular technology professionals.

Program Educational Objectives

1. The program prepares students to utilize diagnostic techniques, sound judgment and good decision making to provide patient services.
2. The program communicates the importance of becoming credentialed in the profession of vascular technology.
3. The program prepares students who think critically, communicate effectively and exemplify professional ethics.
4. The program conveys the importance of becoming life-long learners and responsible citizens.

Student Learning Outcomes

1. The student will demonstrate the ability to communicate effectively in oral, written and visual forms.
2. The student will demonstrate the ability to work effectively in teams.
3. The student will demonstrate an ability to provide basic patient care and comfort.
4. The student will employ professional judgment and discretion including ethics.
5. The student will demonstrate knowledge and understanding of human gross anatomy, sectional anatomy, and normal and abnormal vascular anatomy.
6. The student will demonstrate knowledge and understanding of vascular physiology, pathology, and pathophysiology.
7. The student will demonstrate knowledge and understanding of vascular physical principles and instrumentation.
8. The student will demonstrate knowledge and understanding of clinical vascular diagnostic procedures and testing
9. The student will demonstrate an understanding of diverse cultural and humanistic traditions in the global society.

Additional Student Learning Opportunities

Students in the Vascular Technology Program are given the opportunity to twice yearly attend conferences through the Vascular Association of Southern Oregon in Medford, OR. Students are also encouraged to attend the Annual Society of Vascular Ultrasound conferences when held on the West Coast or near their extern sites during the student's senior year.

III. Three-Year Cycle for Assessment of Student Learning Outcomes

The following are the nine main outcomes which will be assessed at a rate of three each per year on a three-year cycle, as listed in Table #1 below.

Vascular Technology Student Learning Outcomes Assessment Schedule	2009 - 2010	2010 - 2011	2011 – 2012
1. The student will demonstrate the ability to communicate effectively in oral, written and visual forms.		X	
2. The student will demonstrate the ability to work effectively in teams.	X		
3. The student will demonstrate an ability to provide basic patient care and comfort.			X
4. The student will employ professional judgment and discretion including ethics	X		
5. The student will demonstrate knowledge and understanding of human gross anatomy, sectional anatomy, and normal and abnormal vascular anatomy		X	
6. The student will demonstrate knowledge and understanding of vascular physiology, pathology, and pathophysiology.			X
7. The student will demonstrate knowledge and understanding of vascular physical principles and instrumentation.			X
8. The student will demonstrate knowledge and understanding of clinical vascular diagnostic procedures and testing		X	
9. The student will demonstrate an understanding of diverse cultural and humanistic traditions in the global society.	X		

Table #1. Assessment cycle.

IV. Summary of 2009-10 Assessment Activities

The faculty conducted formal assessment of three student learning outcomes during 2009-10.

A. Student Learning Outcome #2: The student will demonstrate the ability to work effectively in teams.

The Vascular Technology faculty conducted an analysis of where this outcome is reflected in the curriculum. The mapping of this outcome in the Vascular Technology courses can be found in Appendix A, Student Learning Outcome-Course Matrices Table A1.

Direct Assessment #1
The faculty assessed this outcome in VAS 385 in spring term using a team project to design a vascular lab. The faculty rated the proficiency of students using the performance criteria described in Table #2 below.

Performance Criteria	Assessment Methods	Measurement Scale	Minimum Acceptable Performance	Results
Achieves Goal/ Purpose	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	100%
Assumes Roles & Responsibilities	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	100%
Interacts Appropriately	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	94%
Reconciles Differences	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	100%
Shares Work Appropriately	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	94%
Develops Strategies/ Actions	Grading Rubric	1-4 scale per rubric proficiency criteria	90% with 3.0 or higher	94%

Table #2. Assessment results for PSLO #2, VAS 385, spring 2010.

Students performed above expectations in all categories for PSLO #2. The Vascular faculty had studied and was aware that students of the "Y" Generation are well versed in and expect teamwork group activity in all of their college course work. Protocols for allied healthcare workers are determined by doctors and other hospital/clinical

administrators and are not determined by team effort of vascular technologists. Teamwork for the vascular lab is therefore centered around equipment allocation, vascular lab furnishings, compliance with patient confidentiality issues and who handles the daily duties required in the vascular lab. Although students would like more teamwork activity, the Vascular faculty agreed that what has been taught in the Vascular program is sufficient for the field.

As a result of the data, the OIT Vascular Technology program faculty decided to maintain the same level of teamwork activity included in the program.

Direct Assessment #2

The faculty also assessed this outcome in VAS 420 from the 2009-2010 academic year, spring term, using randomly selected student competency evaluations where outcome #2 is assessed by industry. The faculty rated the proficiency of students using the performance criteria described in Table #3 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target or higher
Recognizes role as a vascular lab team member.	Student Competency Evaluation #2, $a_{1.}$	1 – 100% Scale	90% with 90% or higher	95%
Demonstrates initiative in vascular lab team effort	Student Competency Evaluation #2, $a_{2.}$	1 – 100% Scale	90% with 90% or higher	95%
Gathers appropriate quality assurance data for vascular lab team effort	Student Competency Evaluation #2, b.	1 – 100% Scale	90% with 90% or higher	94%
Works effectively as a team member on vascular lab projects	Student Competency Evaluation #2, c.	1 – 100% Scale	90% with 90% or higher	94%

Table #3. Industry ratings for PSLO #2, VAS 420, spring 2010

Students performed above expectations in all categories for PSLO #2. The Vascular faculty was pleased with the positive feedback from industry regarding how well extern students are prepared for the teamwork and group activity required in the field of Vascular Technology. The faculty also recognized the fact that what has been taught on campus is complemented and completed on extern in an actual functioning hospital/clinical vascular lab.

As a result of the data, the OIT Vascular Technology program faculty decided to continue to carefully look to industry for any new requirements in regard to teamwork or group activity in vascular labs in the field.

Indirect Assessment #1
The faculty assessed this outcome in VAS 420 using the student 2008-09 exit surveys, asking students to rate how well the OIT Vascular Technology program and their extern site prepared them for learning outcome #2. The students rated their preparation using the performance criteria described in Table #4 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target or higher
Student rating of how OIT prepared them for outcome #2.	Exit Survey	1 – 4 Scale	90% with a score of 3.0 or better	94%
Student rating of how their extern site prepared them for outcome #2.	Exit survey	1 – 4 Scale	90% with a score of 3.0 or better	94%

Table #4. Student ratings of their preparation for PSLO #2, VAS 420, spring 2009

Student feedback exceeded faculty expectations in both categories for PSLO #2 as listed above, but students commented they felt their teamwork/group work activity was limited both on campus and off. The Vascular faculty did discuss the merits of integrating more teamwork activity into the courses already offered, but agreed to be cautious about adding any additional course loading, as loading is near its maximal limit in the Vascular Technology program.

As a result of the data, the OIT vascular technology faculty agreed to dialogue more about how to better integrate teamwork/group activity into the existing courses.

B. Student Learning Outcome #4: The student will employ professional judgment and discretion including ethics.

The Vascular Technology faculty conducted an analysis of where this outcome is reflected in the curriculum. The mapping of this outcome in the Vascular Technology courses can be found in Appendix A, Student Learning Outcome-Course Matrices Table A2.

Direct Assessment #1
The faculty assessed this outcome in VAS 365 during fall term 2009 using an Institutional Student Learning Outcome ethics homework assignment and rubric. The faculty rated the proficiency of students using the performance criteria described in Table #5 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results - % with Target. or higher
Provisions	Rubric Graded Assignment	1-4 scale for all 3 provisions	90% with 3 or higher for all 3 provisions	98%
Ethical Issue	Rubric Graded Assignment	1-4 Scale	90% with 3 or higher	79%
Parties	Rubric Graded Assignment	1-4 Scale	90% with 3 or higher	58%
Actions	Rubric Graded Assignment	1-4 Scale	90% with 3 or higher	73%
Benefits/Risks	Rubric Graded Assignment	1-4 Scale	90% with 3 or higher	95%

Table #5. Assessment results for PSLO #4, VAS 365, fall 2009

Students performed at or above expectations in the provision and benefits/risks categories above for PSLO #4. Students performed below expectations in identifying ethical issues, parties involved, and alternative actions. A single problem was identified as the primary reason for all of the low scores and in particular "parties involved." Students failed to recognize the ethical responsibility of the vascular surgeon to compare the vascular lab results with the "Gold Standard" angiography reports. As a result of not recognizing the ethical issue with the responsibility of the correct party, proper actions were not identified.

As a result of the data, the Vascular Technology faculty agreed to stress the ethical responsibilities vascular technologists have in quality control communication with the vascular surgeons they serve. This will be emphasized in all core vascular courses in which disease processes are the focus.

Direct Assessment #2

The faculty assessed this outcome in VAS 420 from the 2008-2009 academic year, spring term, using extern student professional evaluations where components of outcome #4 were assessed by industry (clinical supervisors/instructors). The faculty rated the proficiency of students using the performance criteria described in Table #6 below.

Examination of Judgment/Critical thinking and Professional Ethics include the following items:

Judgment/Critical Thinking

- Show appropriate judgment based on sound knowledge.
- Use available data to predict outcome.
- Show ability to troubleshoot.
- Take appropriate action, and make sound decisions in stressful situations.

Professional Ethics

- Show appropriate behavior for a clinical work setting.
- Adhere to the Society of Vascular Ultrasound Code of Ethics.
- Show effective communication with the Clinical Instructor.
- Consistently adheres to the hospital HIPPA policies/procedures.

Performance Criteria	**Assessment Methods**	**Measure Scale**	**Minimum Acceptable Performance**	**Results -% with Target or higher**
Professional Judgment/ Critical Thinking	Student Competency Evaluation #4, a.	1 – 100% Scale	90% with a score of 90% or better	90.4%
Professional Ethics	Student Competency Evaluation #4, b.	1 – 100% Scale	90% with a score of 90 or better	100%

Table #6 Industry ratings of 2008-09 externs on PSLO #4, VAS 420

Students performed at or above expectations in both categories above for PSLO #4. Although students in the Vascular Program have been taught the Code of Ethics as published by the Society of Vascular Ultrasound, most of professional ethics has been taught by evaluation rather than direct teaching methods in professionalism.

As a result of the data, the faculty in the Vascular Program decided to maintain the current level of rigor in education and evaluation for this learning outcome.

Indirect Assessment #1

The faculty assessed this outcome in VAS 420 from the student 2008-09 exit surveys asking them to rate how well the OIT Vascular Technology program and their extern site prepared them for this learning outcome. The students rated their preparation using the performance criteria described in Table #7 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target or higher
Student rating of how OIT prepared them for outcome #4	2007 – 2008 Extern Exit Survey	1 – 4 Scale	90% with a score of 3.0 or higher	93.7
Student rating of how their extern site prepared them for outcome #4	2007 – 2008 Extern Exit Survey	1 – 4 Scale	90% with a score of 3.0 or higher	100%

Table #7. Student ratings of their preparation for PSLO #4, VAS 420, 2008-09

Students rated their professional training above expectations both in how the OIT Vascular Program and their extern sites prepared them for PSLO #4. Many times when the faculty have visited students on extern, students will comment on how the professional requirements in the field were what they were evaluated on while on campus. Some students, however, claim the opposite. The Vascular Program faculty also recognized that some components of professionalism should be taught at home and perhaps can only be taught in the home.

As a result of the data, the Vascular Program Faculty decided to continue dialogue with students in regard to the above mentioned surveys and extern visitations.

C. Student Learning Outcome #9: The student will demonstrate an understanding of diverse cultural and humanistic traditions in the global society.

The Vascular Technology faculty conducted an analysis of where this outcome is reflected in the curriculum. The mapping of this outcome in the Vascular Technology courses can be found in Appendix A, Student Learning Outcome-Course Matrices Table A3.

Direct Assessment #1

The faculty assessed this outcome in VAS 366 in winter term using a homework review of Penn State's publication "An Overview of Diversity Awareness." A ten question exam was administered and the faculty rated the proficiency of students using the performance criteria described in Table #8 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target or higher
Cultural Definitions	10 question exam	1 – 2 scale for questions 1 & 6	100% with 1 or more correct answers	100%
Cultural Trends	10 question exam	1 – 3 scale for questions 2, 3, &4	80% with 2 or more correct answers	94.4%
Cultural Stereotyping	10 question exam	1 – 2 scale for questions 8 & 9	100% with 1 or more correct answers	100%
Cultural Observations	10 question exam	1 – 3 scale for questions 5, 7 & 10	80% with 2 or more correct answers	100%

Table #8 Assessment results for PSLO #9, VAS 366, winter 2010

Students performed above expectation in all categories. The Junior students who participated in this assessment exercise learn the importance of cultural diversity awareness in regard to the field of vascular technology during their sophomore year in the VAS 225 Patient Management Processes course.

As a result of the data, the faculty of the Vascular Technology Program decided to continue emphasis in teaching cultural diversity awareness in the VAS 225 course and will include more homework assignments reviewing future publications regarding cultural diversity awareness.

Direct Assessment #2

The faculty also assessed this outcome in VAS 420 from the 2009-10 senior extern year using random competency evaluations where this outcome is assessed by industry. The faculty rated the proficiency of students using the performance criteria described in Table #9 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target or higher
Appropriately works with interpreters to gather patient history	Student Competency Evaluation #9, a.	1 – 100 Scale	80% with a score of 80% or higher	100%
Avoids demonstration of prejudice	Student Competency Evaluation #9, b.	1 – 100 Scale	80% with a score of 80% or higher	100%
Recognize cultures have different traditions in medicine	Student Competency Evaluation #9, c.	1 – 100 Scale	80% with a score of 80% or higher	100%

Table #9 Industry evaluation of externs on PSLO #9, VAS 420, 2009-10

Students performed above expectations in all categories. Although our extern sites had rated our students highly in this assessment activity, many of the clinical instructors question their own knowledge on the subject. Although cultural diversity awareness is required in many hospital-based vascular labs, there are no significant criteria for employee or student evaluations.

As a result of the data, the faculty will not only continue the same rigor in teaching cultural diversity awareness on campus, but will work with our clinical extern affiliates to establish better assessment criterion.

Indirect Assessment #1

The faculty assessed this outcome in VAS 420 from the student 2008-09 exit surveys asking them to rate how well the OIT Vascular Technology program and their extern site prepared them for this learning outcome #9. The students rated their preparation using the performance criteria described in Table #10 below.

Performance Criteria	Assessment Methods	Measure Scale	Minimum Acceptable Performance	Results -% with Target Av. or higher
Student rating of how OIT prepared them for outcome #9.	Exit Survey	% scale per category used	80% with a score of 3.0 or better	83.3%
Student rating of how their extern site prepared them for outcome #9.	Exit survey	% scale per category used	80% with a score of 3.0 or better	94.4%

Table #10. Student ratings of their preparation for PSLO #10, VAS 420, 2008-09

Students rated themselves at or above expectations in both categories. What the faculty found interesting was the relatively low percent of students indicating they were sufficiently taught cultural diversity awareness on campus.

As a result of the data, the faculty decided to include more cultural diversity homework assignments while students are on campus. The faculty also agreed they do not feel adequately trained to teach cultural diversity awareness and could use more education themselves.

V. Evidence of Student Learning

During the 2009-10 academic year, the program faculty formally assessed the student learning outcomes summarized below. Additional details on these assessment activities can be found in the attached assessment report and in department records.

Student Learning Outcome #2: The student will demonstrate the ability to work effectively in teams.

Strengths: Students performed or rated themselves at or above expectations in all categories regarding their ability to work effectively in teams. Industry also rated extern students most satisfactorily as to how well OIT prepares vascular students for the teamwork activity required in the field.

Areas needing improvement: Although students rated themselves well and met the requirements of the field regarding teamwork, the students themselves did request more teamwork being integrated in the Vascular Technology courses offered at OIT.

Plans for improvement: None at this time.

Student Learning Outcome #4: The student will employ professional judgment and discretion, including ethics.

Strengths: Students performed above expectations in identifying ethical provisions, ethical benefits/risks and professional judgment/critical thinking. Students preparing to graduate also rated their professional training at OIT and at their extern sites quite highly.

Areas needing improvement: Students performed below expectations in identifying ethical issues, parties involved and alternative actions, because they failed to recognize the ethical responsibilities of the vascular surgeons they serve.

Plans for improvement: In all VAS prefix courses in which disease processes are taught, emphasis will be made to stress the ethical responsibilities vascular technologists have in quality control (comparisons between vascular studies and "Gold Standard" studies) communication with the vascular surgeons they serve.

Student Learning Outcome #9: The student will demonstrate an understanding of diverse cultural and humanistic traditions in the global society.

Strengths: Students performed or rated themselves at or above expectations in all categories of cultural diversity awareness. In general, industry does approve of the level of education the Vascular Technology program students do exhibit. There does seem to be some frustration from industry however, in that not enough criteria exist within their judgment capability to have a good sense of how well they are grading our students.

Areas needing improvement: Students would like to have more cultural diversity awareness taught in the on campus VT program.

Plans for improvement: At the time of this assessment activity, the faculty was content that industry was satisfied with the level of cultural diversity awareness the students had been exhibiting. The faculty felt they need more training in order to better teach this subject and hoped to somehow receive that training soon.

VI. Changes Resulting from Assessment.

Long term retention was once again evaluated for student ability to recall vascular anatomy (PSLO #5) by re-administering select questions from the VAS 214 Vascular Anatomy final exam to students in the VAS 375 course, Winter term, 2010. Answers were compared with the assessment activity originally conducted for PSLO #5 on 11/28/07. More cross-sectional anatomy images have been introduced not only in the VAS 214 course, but throughout other VAS courses as well to improve student ability to discern right from left. Additional repetition has been included in the same courses to better reinforce which forearm vessels feed the hands and what vessel is the dominant lateral calf vessel.. Only 15% of the students answered correctly in 2007 and 53% answered correctly in 2010 discerning right from left. Students answered 54% correctly in 2007 and 65% answered correctly in 2010 regarding which forearm vessels feed the

hands. Students answered 35% correct in 2007 and 76% answered correctly in 2010 regarding the dominant lateral calf vessel. Although one might conclude these overall percentages are quite low, one must remember these evaluations are unique in that students are tested at least a full year after initially receiving the information. The numbers have demonstrated however, the "closing the loop" efforts of the Vascular Faculty have indeed been working.

The Vascular Technology program, along with the other medical imaging programs at OIT, is unique in that it has received feedback from the industry it serves. The positive feedback received has indicated at least quantitatively the Vascular program does not need improvement in many/most of the assessment PSLO's. The faculty in the Vascular program, however, do see several areas of qualitative improvement needed as a result of the general assessment activities that have been conducted. For example for PSLO #4, the Vascular faculty determined there should be increased emphasis in all courses regarding the balance of Quantity of Work vs. Quality of work. Although not quantitatively evaluated, the faculty has stressed this more each term when addressing the professional evaluation performed in all of our VAS prefix labs. Also for PSLO #4 regarding the proper attitude to maintain during Performance under Pressure, we have talked about body language particularly in lab practical examinations.

Appendix A

SLO #2: The student will demonstrate the ability to work effectively in teams.

Courses that are shaded below indicate that the SLO above is taught in the course, students demonstrate skills or knowledge in the SLO, and students receive feedback on their performance on the SLO.

I = Introduced
R = Reinforced
E = Emphasized

	Sophomore			Junior			Senior		
Fall	BIO 220	Cardio Physio		BUS 317	Health Care		VAS 420	Extern	R
	BIO 346	Patho Physio		SPE 321	Sm Group	I E			
	PHY 217	Phy of MI		VAS 337	Survey Echo				
	VAS 214	Vas Anatomy		VAS 365	Abd Vas				
				Soc Sci	Soc Sci elective				
Win	BIO 347	Patho Phys II		BUS 316	TQ in Health		VAS 420	Extern	R
	VAS 210	Vas Prin Inst I		CHE 210	Clin Pharm				
	VAS 245	Peri Ven Disease		VAS 366	Circ Probs				
	VAS 335	Radio Vas Anat		VAS 375	Abd Sono				
				HUM Elec	Hum elective				
Spr	VAS 211	Vas Prin Inst II		VAS 367	Cerebro Disease		VAS 420	Extern	R
	VAS 225	Patient Mgmt		VAS 385	Vas Lab Mgmt	E			
	VAS 246	Peri Art Disease		VAS 388	Extern Orient				
	WRI 227	Tech Report		COM Elec	COM elective				
	Soc Sci	Soc Sci elective		HUM Elec	HUM elective				

A1, SLO#3 Course Matrix

SLO #4: The student will employ professional judgment, and discretion including ethics

	Sophomore			Junior			Senior		
Fall	BIO 220	Cardio Physio		BUS 317	Health Care		VAS 420	Extern	E
	BIO 346	Patho Physio		SPE 321	Sm Group				
	PHY 217	Phy of MI		VAS 337	Survey Echo				
	VAS 214	Vas Anatomy		VAS 365	Abd Vas	E			
				Soc Sci	Soc Sci elective				
Win	BIO 347	Patho Phys II		BUS 316	TQ in Health		VAS 420	Extern	E
	VAS 210	Vas Prin Inst I		CHE 210	Clin Pharm				
	VAS 245	Peri Ven Disease	I E	VAS 366	Circ Probs	E			
	VAS 335	Radio Vas Anat		VAS 375	Abd Sono				
				HUM Elec	Hum elective				
Spr	VAS 211	Vas Prin Inst II		VAS 367	Cerebro Disease	E	VAS 420	Extern	E
	VAS 225	Patient Mgmt	I E	VAS 385	Vas Lab Mgmt				
	VAS 246	Peri Art Disease	E	VAS 388	Extern Orient				
	WRI 227	Tech Report		COM Elec	COM elective				
	Soc Sci	Soc Sci elective		HUM Elec	HUM elective				

A2, SLO#6 Course Matrix

SLO #9: The student will demonstrate an understanding of diverse cultural and humanistic traditions in the global society.

	Sophomore			Junior			Senior		
Fall	BIO 220	Cardio Physio		BUS 317	Health Care		VAS 420	Extern	R
	BIO 346	Patho Physio		SPE 321	Sm Group				
	PHY 217	Phy of MI		VAS 337	Survey Echo				
	VAS 214	Vas Anatomy		VAS 365	Abd Vas				
				Soc Sci	Soc Sci elective				
Win	BIO 347	Patho Phys II		BUS 316	TQ in Health		VAS 420	Extern	R
	VAS 210	Vas Prin Inst I		CHE 210	Clin Pharm				
	VAS 245	Peri Ven Disease		VAS 366	Circ Probs	E			
	VAS 335	Radio Vas Anat		VAS 375	Abd Sono				
				HUM Elec	Hum elective				
Spr	VAS 211	Vas Prin Inst II		VAS 367	Cerebro Disease		VAS 420	Extern	R
	VAS 225	Patient Mgmt	I E	VAS 385	Vas Lab Mgmt				
	VAS 246	Peri Art Disease		VAS 388	Extern Orient				
	WRI 227	Tech Report		COM Elec	COM elective				
	Soc Sci	Soc Sci elective		HUM Elec	HUM elective				

A3, SLO#7, ISLO: Scientific knowledge and skill in scientific reasoning. Course Matrix