

Program Assessment:

SPRING 2009

ANALYSIS and REFLECTION

**Division of Natural Sciences and
Mathematics**

Chaminade University

Program Assessment Timeline

Task	Timeframe	Method	Participants
Decide on nature of program assessment instrument	Fall 08	Discussion in Divisional and Discipline Meetings	Dean, Faculty
Construct draft exit survey (indirect analysis)	Fall 08	Collate questions	Dean, Faculty
Review draft exit survey (indirect analysis)	Fall 08		Faculty
Devise comprehensive exam questions	Spring 08	Tasking at January 08 Faculty Retreat	Faculty
Finalize exit instrument construction	Spring 08 <i>Note: exit instrument revised Spring 09 with altered physics questions and addition of math questions</i>	Collation and assembly	Dean and staff
Deliver exit instrument to graduating seniors	Spring 08, Fall 08, Spring 09	2h closed exam session with students	FS, BS and biology co-ordinators
Survey data analysis	Summer 08, Xmas 08, Summer 09		Dean and staff
Comprehensive exam grading	Summer 08, Xmas 08, Summer 09		Faculty
Assemble data for report to faculty	Summer 08, Xmas 08, Fall 09	Document for distribution at August 08 Faculty Retreat	Dean and Staff
Reflection and Analysis	Fall 08, Spring 09, Fall 09 retreat	Presentation by Dean and Discipline work-groups scheduled at August 09 Faculty Retreat	Dean, Faculty
Preparation of reflection documents	Fall 08, Spring 09, Fall 09		Faculty
Collation of data and reflections into this report, distribution to faculty	Fall 08, Spring 09, Fall 09		Dean and staff

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1. Overall Comprehensive Exam Data

Student participants:

- 0 MSFS graduates
- 12 BSFS graduates
- 7 Biology graduates
- 0 CS graduates

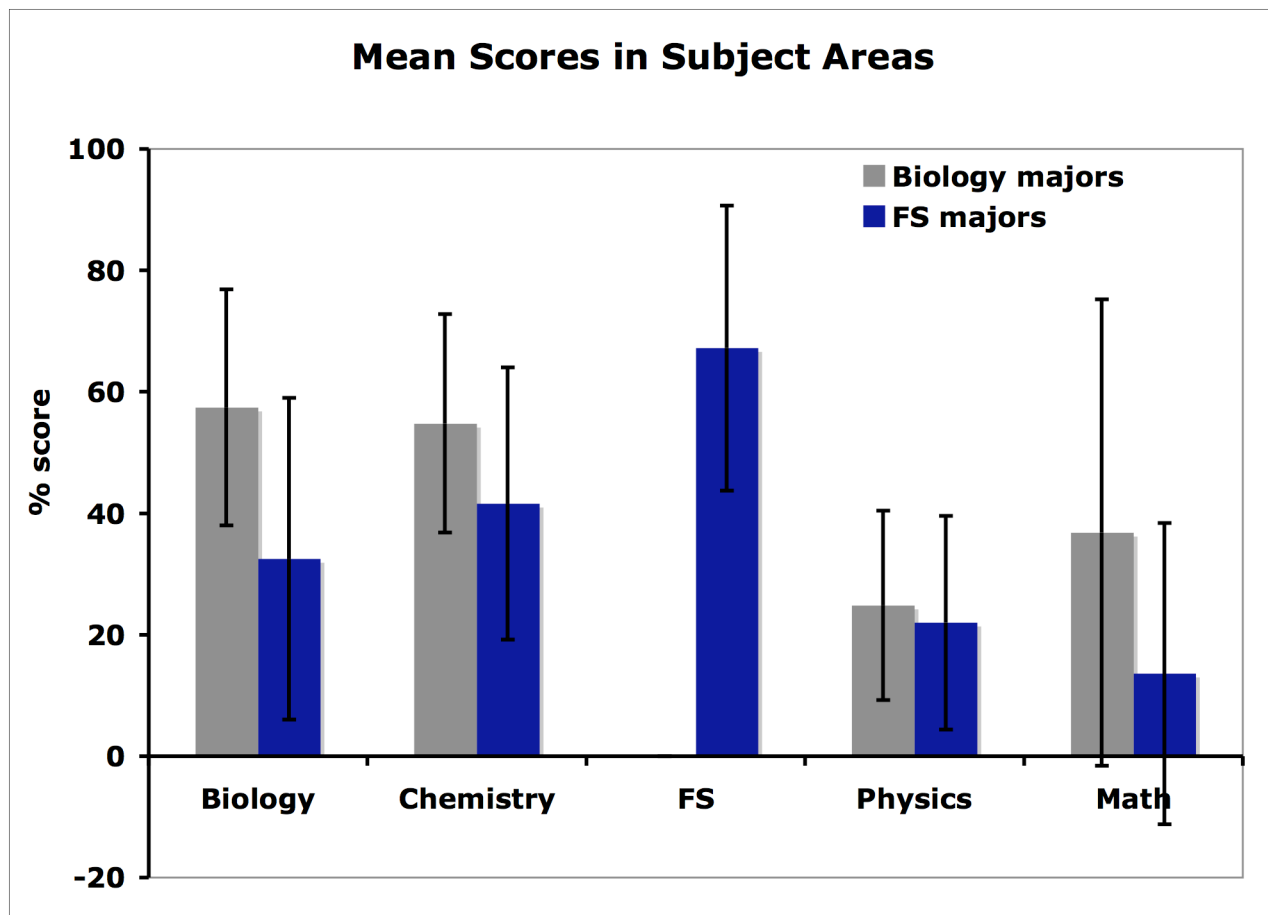
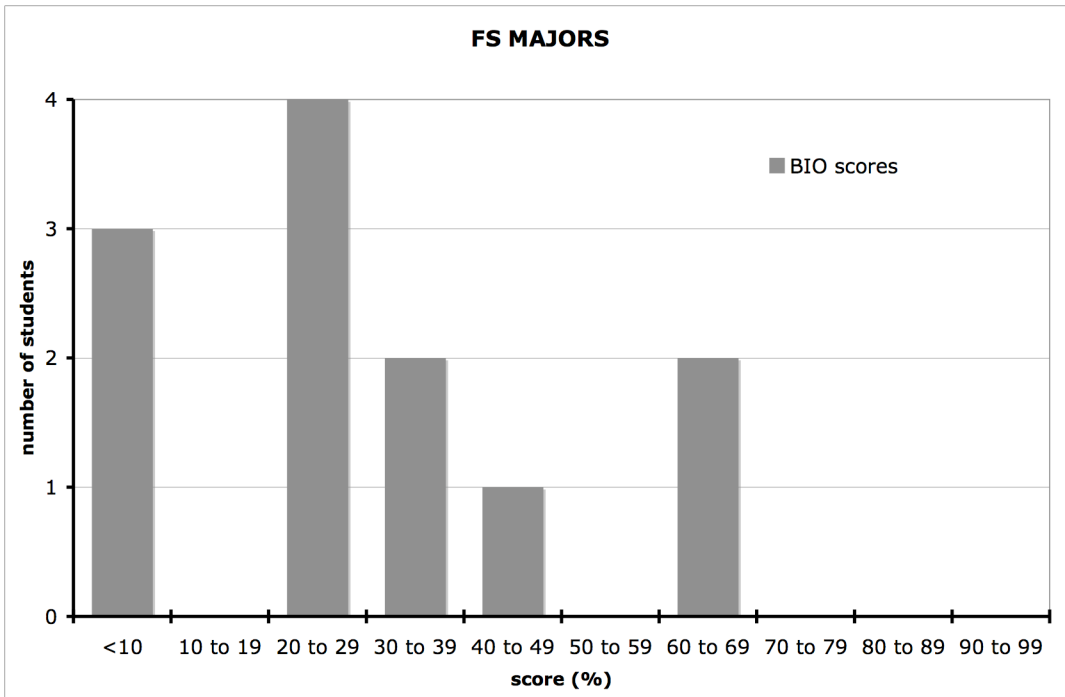
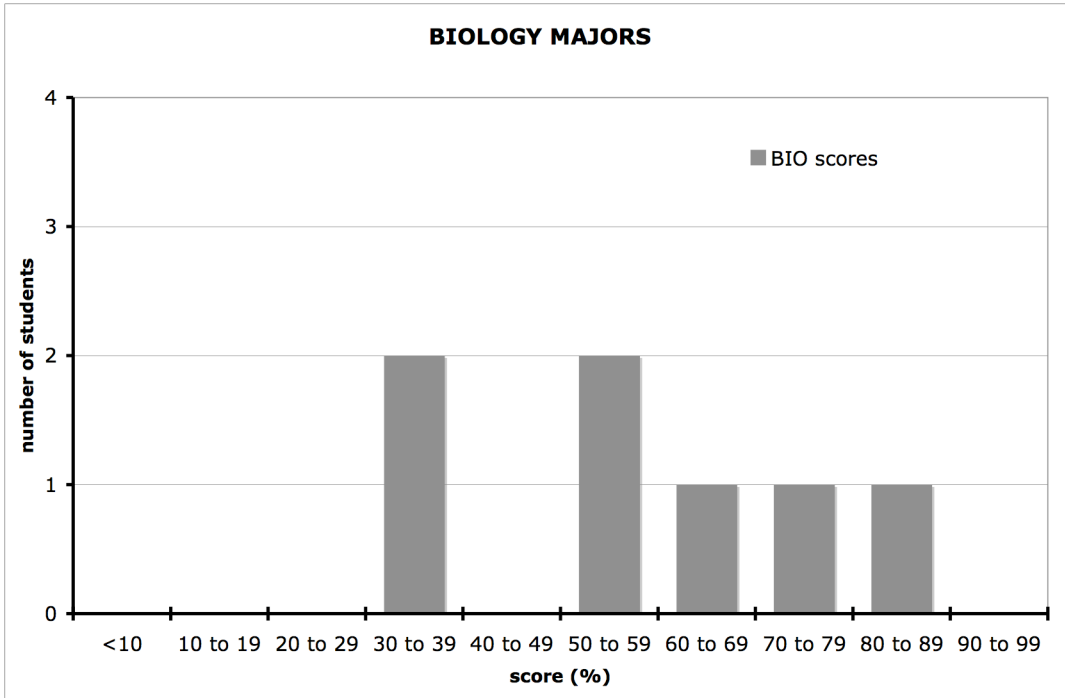
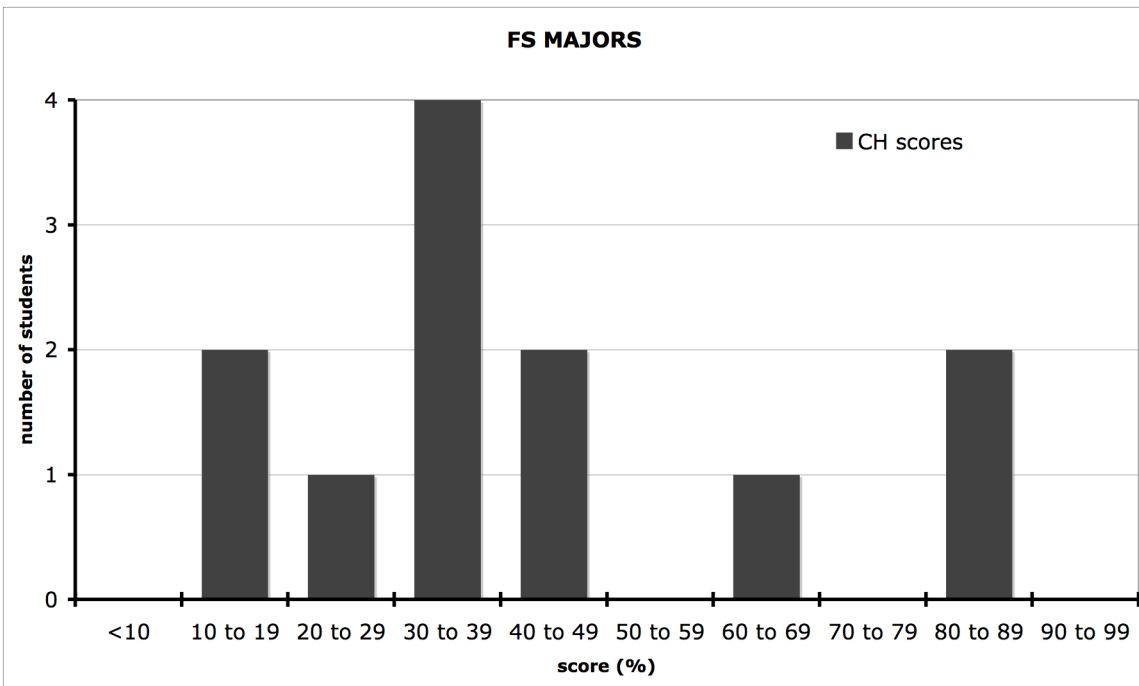
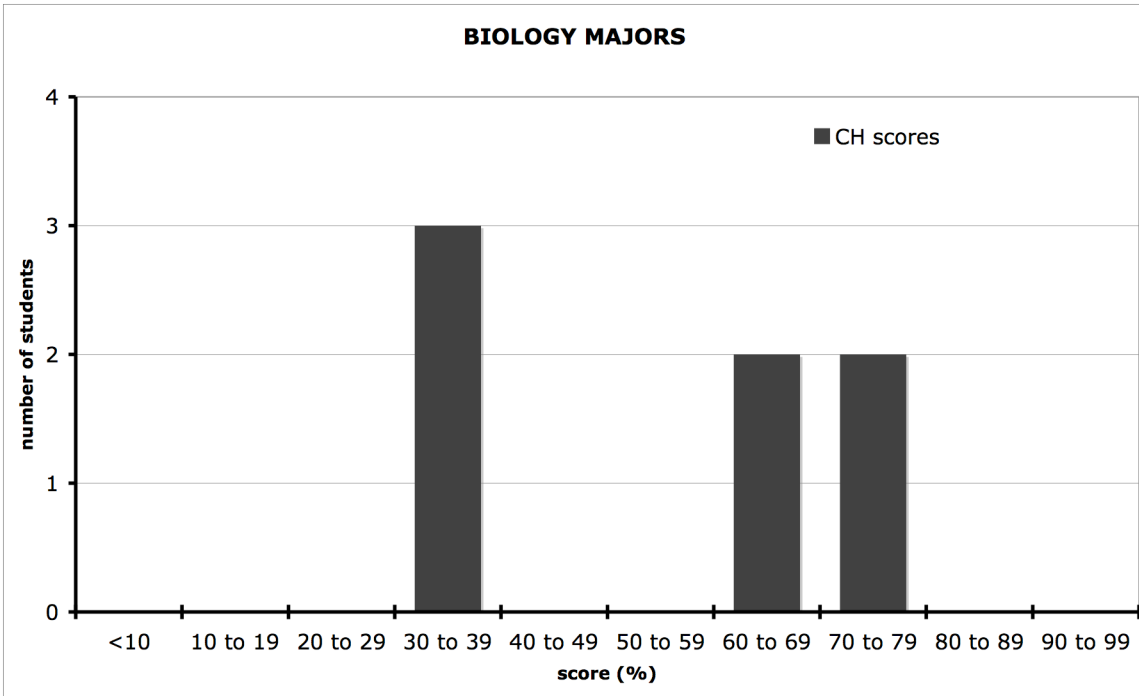
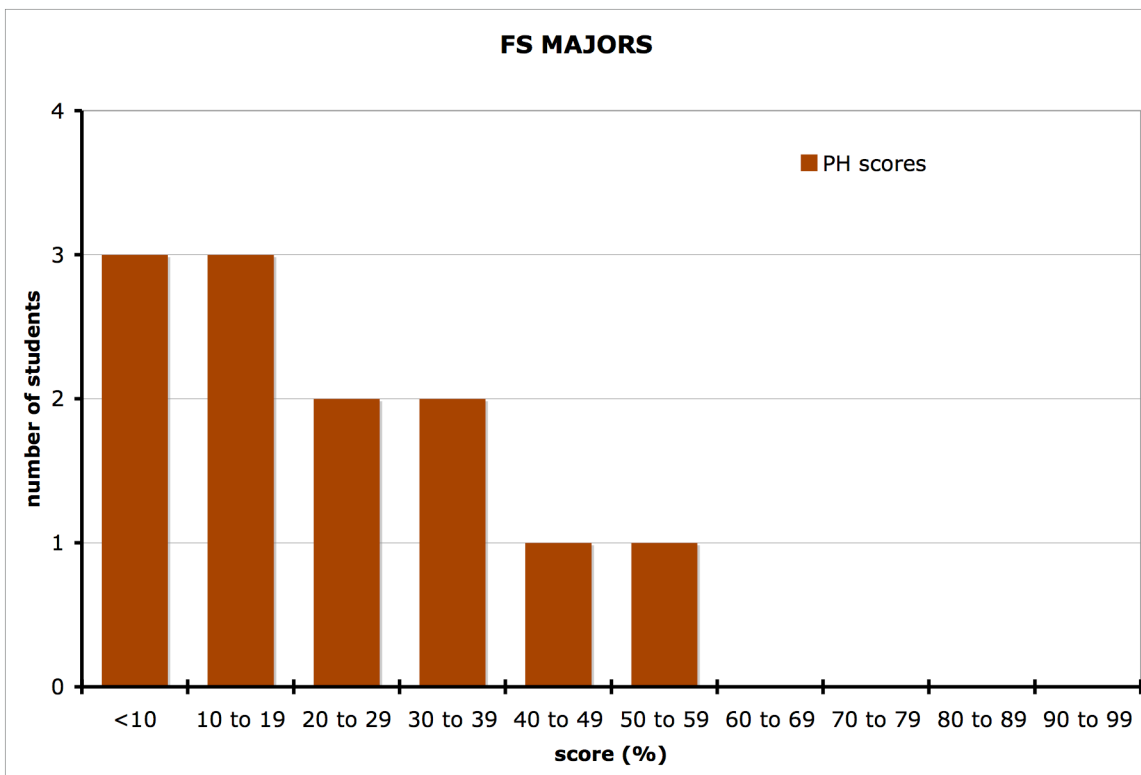
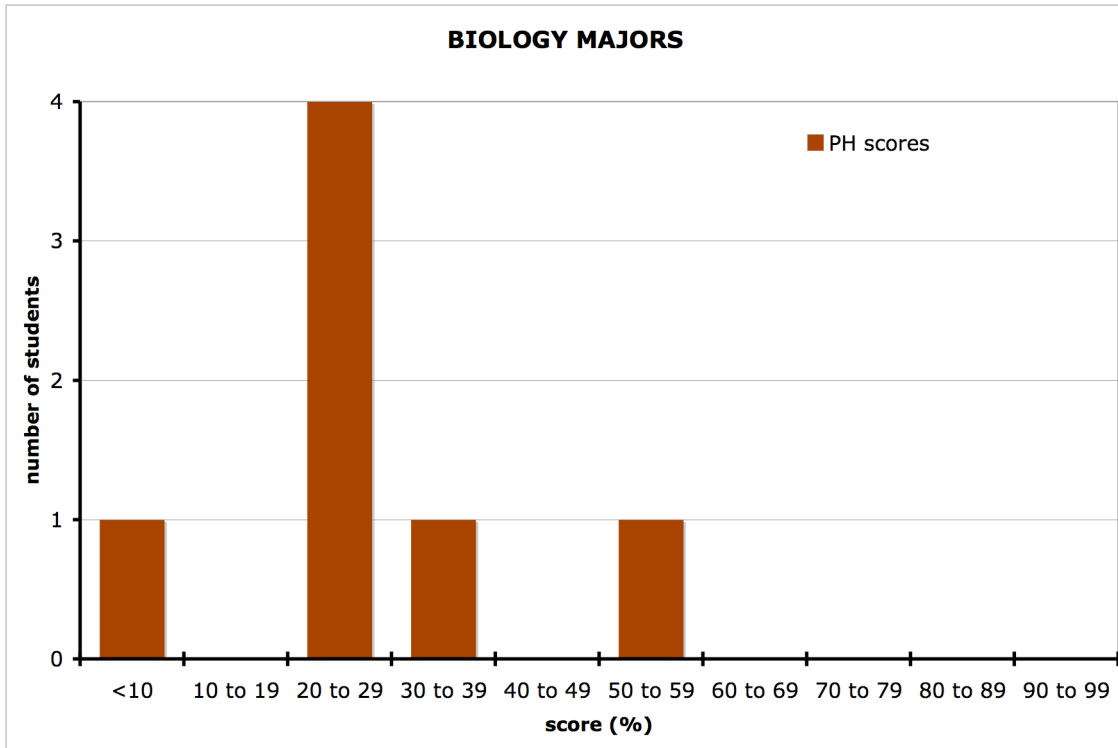


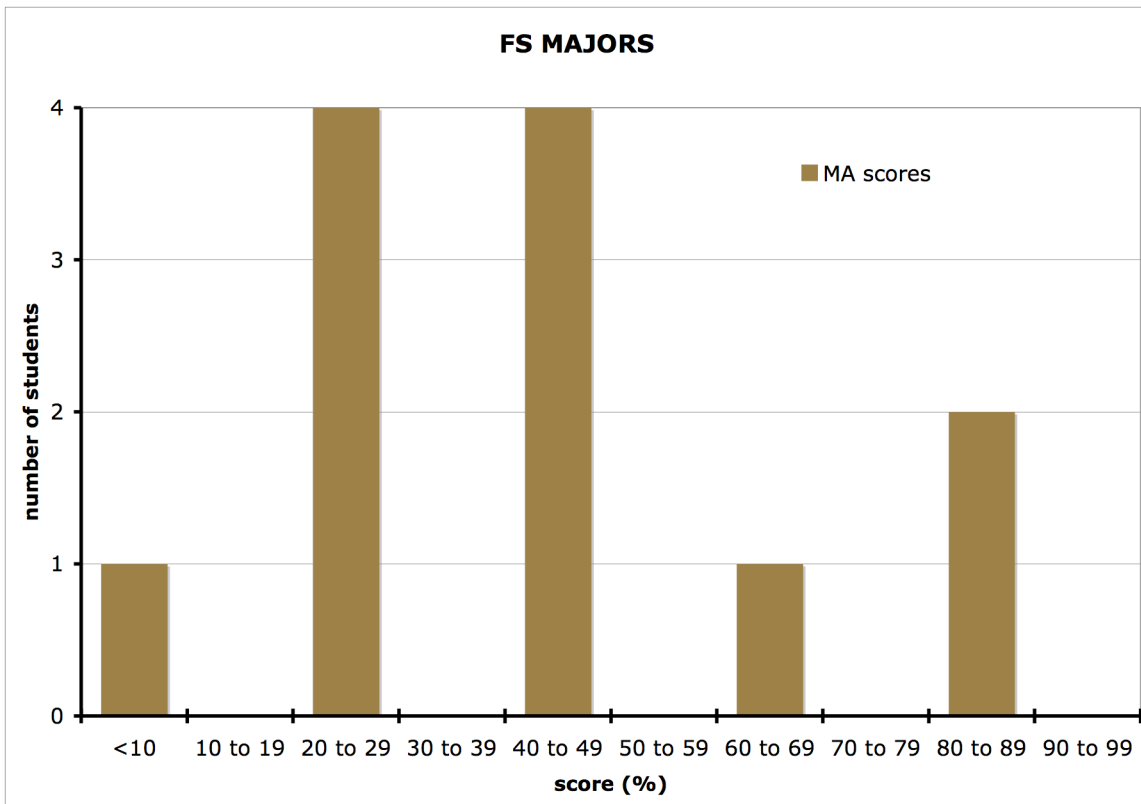
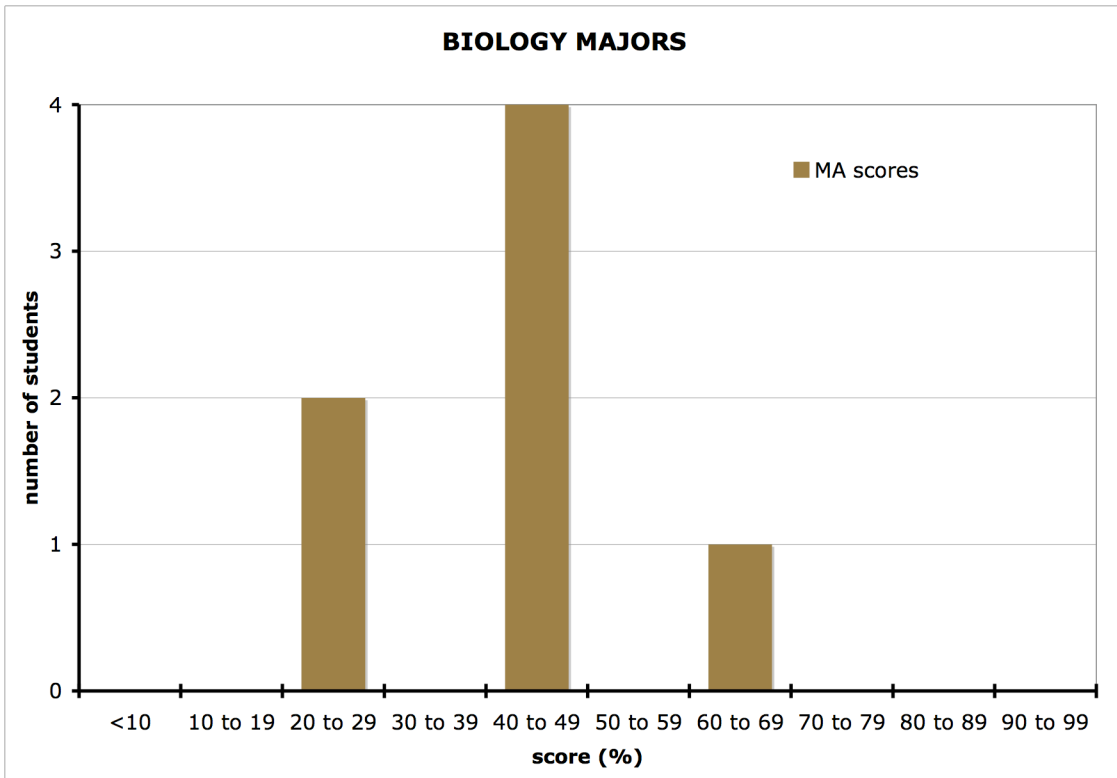
Figure 1. Scores of BIO and FS students on comprehensive exam section of Divisional Exit Instrument.

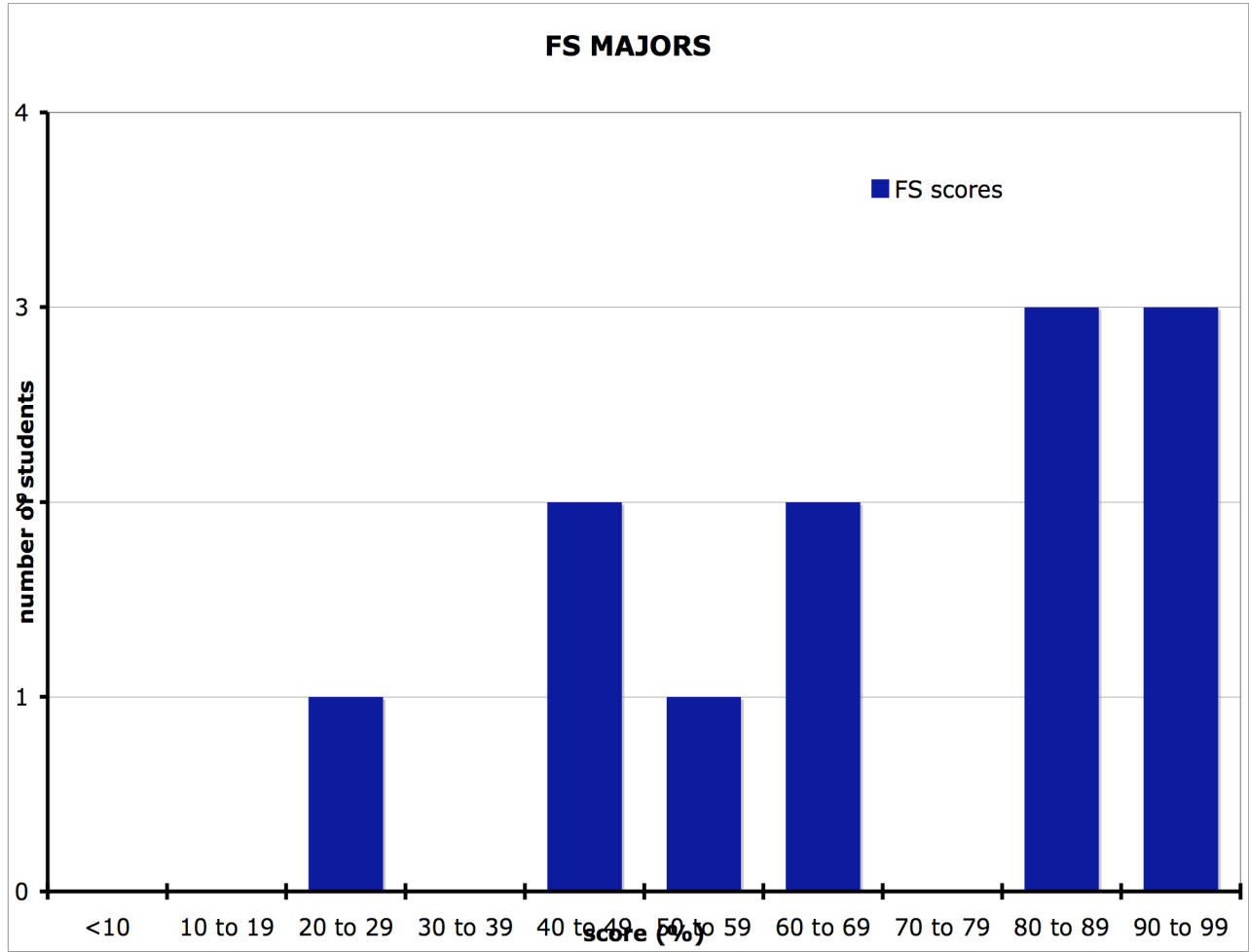
Figure 2. Distributions of discipline-specific scores of BIO and FS students on comprehensive exam section of Divisional Exit Instrument.











2. Forensic Sciences

2.1. Forensic Sciences Survey Data.

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Program Outcomes	Because of my coursework in Forensic Sciences at Chaminade, I can demonstrate an understanding of:						
	1. The basic sciences that underpin FS	0%	0%	0%	50.0%	50.0%	
	2. Legal issues governing admissibility of evidence they collect, and preparation of oral and written testimony	0%	0%	0%	33.3%	66.7%	
	3. The different sub-disciplines in FS	0%	0%	0%	41.7%	58.3%	
	4. Techniques involved in recognition, documentation and analysis of forensic evidence	0%	0%	0.0%	16.7%	83.3%	
Program Content	During my studies at Chaminade, I have developed understanding of the following areas of FS and the underlying sciences:						
	5. Cell and Molecular Biology	0%	8%	33.3%	58.3%	0.0%	
	6. Histology	0.0%	33.3%	41.7%	16.7%	8%	
	7. Criminal Law	0%	0%	0%	33.3%	66.7%	
	8. Genetics	0%	8%	8%	66.7%	16.7%	
	9. Forensic Entomology	0.0%	16.7%	8.3%	25.0%	41.7%	
	10. Crime Scene Investigation	0%	0%	0%	25.0%	75.0%	
	11. Forensic Photography	0.0%	0%	25.0%	25.0%	50.0%	
	12. Forensic Anthropology	0%	0.0%	41.7%	16.7%	41.7%	
	13. Probability and Statistics	0.0%	17%	33.3%	33.3%	16.7%	
	14. Trace Evidence	0.0%	0%	17%	50.0%	33%	
	15. Organic Chemistry	8.3%	0.0%	33%	33.3%	25.0%	
	16. Human Remains Detection and Recovery	0.0%	8.3%	16.7%	41.7%	33.3%	
	17. Narcotics and Drug Use	0.0%	16.7%	41.7%	25.0%	16.7%	
	18. Sex Crimes	0.0%	16.7%	33.3%	16.7%	33%	
	19. Microbiology	0.0%	33.3%	41.7%	25%	0%	
		During my studies at Chaminade, I have been exposed to:					
		20. Case studies by leading forensic scientists	0%	0.0%	0%	25.0%	75.0%
		21. Examples of violation of evidence and testimony rules	0%	0%	8%	33.3%	58.3%
		22. Re-enactment of crime scenarios	0%	0%	8%	41.7%	50.0%
		23. Forensic Sciences literature and published papers	0%	0.0%	0%	16.7%	75.0%
		24. The use of the scientific method to investigate crimes	0%	0%	0.0%	33.3%	66.7%
		25. The use of advanced scientific instrumentation to investigate crimes	0.0%	0%	42%	25.0%	33.3%

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
General Education	During my studies I gained:					
	26. Computer skills instruction appropriate to my career choice	0%	25.0%	33.3%	16.7%	25.0%
	27. Instruction in mathematics that enabled me to address everyday applications of math and solve problems appropriate to my major	0.0%	8%	8.3%	50.0%	33.3%
	28. Training in written and oral presentation skills	0%	8%	0%	41.7%	50.0%
	29. Experience and appreciation for the benefits of teamwork	0%	0%	0%	33.3%	66.7%
Capstone Experiences	During my studies I performed:					
	30. A practical summer internship at Chaminade	33.3%	25.0%	25.0%	8%	0.0%
	31. A practical summer internship at another institution	33.3%	16.7%	33.3%	0%	8.3%
	32. A practical research project at Chaminade during the semester	33%	8.3%	25.0%	8%	16.7%
	33. A practical research project at another institution during the semester	33.3%	25.0%	25.0%	0%	8.3%
	34. A poster presentation at Chaminade	25.0%	16.7%	17%	0.0%	33%
	35. A poster presentation at a National Meeting	25.0%	33.3%	17%	0%	8.3%
	36. An in-depth research paper	0%	0%	8.3%	41.7%	41.7%
	37. An internship in a professional setting	8%	0%	25.0%	0.0%	66.7%
Professional Preparation	During my studies I received:					
	38. Advice and practical preparation for standardized tests such as GRE, MCAT, PCAT	8.3%	16.7%	33.3%	25%	8%
	39. Advice and practical preparation on interviews, professional etiquette and job seeking.	8%	0%	8%	41.7%	41.7%
	40. Exposure to role models in my chosen field	0%	0%	0%	33.3%	66.7%
	41. Career development seminars and workshops	0%	8%	33.3%	33.3%	25.0%
	42. Internship opportunities in my chosen field	0%	17%	0%	33.3%	50.0%
Advising by Forensic Sciences Faculty	During my studies I:					
	43. Met with my advisor at least once per	0%	33%	8%	41.7%	16.7%
	44. Found my advisor to be accessible in person, by phone or email.	0%	8%	8%	16.7%	66.7%
	45. Was accurately advised on core requirements of my major	0%	0%	0.0%	41.7%	58.3%
	46. Was accurately advised on elective components of my major	0%	0%	8%	33.3%	58.3%
	47. Was satisfied by the quality of advising I received.	0%	0%	0%	50.0%	50.0%
		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Support Services	During my studies I:					
	48. Was satisfied by the library resources (e.g. journal access) for my studies	8.3%	25.0%	8%	33.3%	25%
	49. Was satisfied by the information resources (e.g. computer/printing access) for my studies	16.7%	8%	8%	33.3%	33.3%
	50. Was satisfied by the quality of tutoring services available to me	0%	8%	8.3%	41.7%	42%
	51. Was satisfied with the services and guidance provided by the Dean	8%	8%	16.7%	41.7%	25.0%
	52. Was satisfied by the services and guidance provided by the divisional support staff (secretary, lab assistants).	0%	0%	33%	33.3%	33.3%
Overall Evaluation	53. I would recommend this program to a friend	0.0%	0%	0.0%	16.7%	75.0%

2.2. Forensic Sciences Strengths/Weaknesses.

Strengths	Weaknesses
Small class size	No required poster presentation for FS majors
Wisdom/practical knowledge of faculty	No practice entrance exams for Forensic Scientist 1
Curriculum	No Forensic Biology laboratory section
Through our instruction, Professors showed examples for their own experience	I would like to see a research class with this program
Our Professor have much experience in the field and can direct people on the right path	Needs more equipment/technology
With this program, many door are opened to you	Need space for more practicals
Experience in the field of Professors	Faculty could probably offer different ideas as to intern/job opportunities. Many students rely on word of mouth.
Known by other professionals as a good program	Perhaps offer more classes, for example, photography is only offered in the Fall. Photography is one of the most important aspects of documentation and more students should be afforded the opportunity to take the class.
Varied course electives to feel out multiple areas within FS	Larger selection of classes available.
Dr. Goff and Sully both have a lot of credibility due to their extensive experience and their current involvement in active cases	Designated labs and working area
Small classes provide a more personal setting and faculty are approachable	Physics
Strong role models in an active FS field	Not enough Professors
Hands on approach to FS techniques and problems	Lack of different sub-disciplines offered
Placement after graduation in an FS field	More hands on experience
Best, professional faculty (Professors)	Not an easy program for transfer student to join – should give more credit to community college classes
Vast amount of courses that teach each and every aspect of FS	Too many extra & not needed classes required
Wonderful opportunities to work and participate in the FS field (i.e. internships, conferences, etc...)	Not enough professors, downfall that classes not available every semester thus delays graduating & increases debt.
Small class sizes	Better distribution of programs
Hands-on application of subjects talked about in class	Class scheduling by semester, seasonal classes
Only FS program in Hawaii	More classes engaging other fields
Small classes get to know people and	The limited number of Forensic classes

professors in the program	offered.
Knowledgeable and approachable advisors. Professors that work in the field.	More lab time needed to properly go over techniques
Strong Criminal Justice Dept. Really great class required.	More hands on time with practice crime scenes
Great Professors	FS 330/333 too similar, ditch one
Private, intimate class settings	Courses offered once a year, I'd like Entomology/Anthro every semester
Wealth of increasing knowledge	Not enough interaction with some of the tools; ALS for example
Small class sizes for more interaction between teach and student	
Going over actual cases during class. Been able to view videos/pictures of actual crime scenes to get a feel of what we are getting into.	
Having up to date equipment to work with while learning protocol & procedures.	
Good general science background	
Good variety of FS electives/exposure to multiple areas	
Enjoyed being able to interact with the instructors one on one	

Comments:

Best decision I ever made...Period.

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I believe that the FS program at Chaminade University is a wonderful program. They have the best professors who really know their field or area in Forensics and who offer a lot to us students. The FS program here is a wonderful opportunity for us to learn in depth about forensics and to use that to our benefit in the near future.

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More equal opportunity at tutoring not just "need base" labelled students. More print credits. With list: 24 hour open library!

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Comments continued:

I made the right choice to come to Chaminade. I understand that things will always continue to improve but I feel that overall I received an education that will benefit me in my near future. However, after talking to students who are taking FS courses, their class work seems more hands on over when I took the course. I also feel it unfair to miss out on the FS 444 lab due to lack of rooms. I felt with a lab I would have been able to understand the lecture a lot more.

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I would like to see some of the classes optional or a plan drawn up for students that are very close to graduation but are just shy. I think the amount of chemistry should be optional. I know that it's the reason many student take longer to graduate including myself.

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Too much expectations for Organic Chemistry. And basically, I didn't learn much...just taught myself how to memorize in order to pass the exams. Page 3 of this booklet asks for a name but optional yet pg. 22 asks for email address. (What if we want to remain anonymous from this exam/survey but still want to be contacted?) Overall, I enjoyed my time at Chaminade. Would recommend FS program but will advise to take O.Chem, Biochem at other institution.

3. Biology.

3.1. Biology Survey Data.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	
Program Outcomes	Because of my coursework in BIOLOGY at Chaminade, I can demonstrate an understanding of:					
	1. The scientific method and its application to biology	0%	0%	0%	57%	43%
	2. Living organisms and their relationship to each other and the environment	0%	0%	0.0%	28.6%	71%
	3. Theory and practice of biology	0%	0%	0%	28.6%	71.4%
Program Content	4. Opportunities for career development, research and practice in biology	0%	0%	0%	71%	29%
	5. Cell biology	0%	0%	0%	57.1%	42.9%
	6. Molecular Biology	0%	0%	0%	71%	29%
	7. Biochemistry	0%	14.3%	14%	42.9%	29%
	8. Genetics	0%	0%	0%	86%	14%
	9. Evolution	0.0%	0.0%	0.0%	57%	42.9%
	10. Physiology	0.0%	0%	0.0%	57%	43%
	11. Ecology and Ecosystems	0%	0.0%	0%	28.6%	57.1%
	12. Developmental Biology	0.0%	0.0%	14%	85.7%	0.0%
	13. Statistics	0%	42.9%	29%	28.6%	0%
	14. Neuroscience	0%	14.3%	43%	28.6%	14%
	15. Immunology	0.0%	14%	29%	43%	14.3%
	16. Plant Biology	0.0%	0%	28.6%	57.1%	14.3%
	17. Nutrition	0.0%	14.3%	0%	71%	14%
	18. Anatomy	0%	0%	0%	42.9%	57.1%
	19. Microbiology	0.0%	14%	28.6%	28.6%	28.6%
	During my studies at Chaminade, I have developed a general understanding of the mechanisms of the following types of human disease:					
	20. Cancer	0%	0%	0.0%	29%	71.4%
	21. Viral immunodeficiencies such as AIDS	0%	0%	0.0%	57%	42.9%
	22. Autoimmune diseases such as Diabetes	0%	0%	0.0%	43%	57.1%
23. Cardiovascular Disease	0%	0%	0%	43%	57%	
24. Parasitic diseases such as Malaria	0%	0%	0%	29%	71%	
25. Dehydration and diarrhea	0%	0%	0%	43%	57%	

		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
General Education	During my studies I gained:					
	26. Computer skills instruction appropriate to my career choice	0%	14%	28.6%	28.6%	29%
	27. Instruction in mathematics that enabled me to address everyday applications of math and solve problems appropriate to my major	0%	0%	14%	42.9%	42.9%
	28. Training in written and oral presentation skills	0%	0%	14%	29%	57%
	29. Experience and appreciation for the benefits of teamwork	0%	0%	0%	29%	71%
Capstone Experiences	During my studies I performed:					
	30. A practical summer research project at Chaminade (e.g. BI499)	0.0%	14%	0%	14%	71.4%
	31. A practical summer research project at another institution (e.g. BI499, McNair)	14%	43%	0%	0.0%	57.1%
	32. A practical research project at Chaminade during the semester (e.g. BI499)	14.3%	29%	0%	14.3%	43%
	33. A practical summer research project at another institution during the semester (e.g. BI499, McNair)	28.6%	57%	0%	0%	0.0%
	34. A poster presentation at Chaminade	0%	0%	0%	29%	71%
	35. A poster presentation at a National Meeting	14%	29%	0%	0.0%	57.1%
	36. An in-depth research paper (e.g. BI490, 499)	0%	0%	0%	29%	71%
	37. An internship in a professional setting	0%	0%	0%	29%	57%
Professional Preparation	During my studies I received:					
	38. Advice and practical preparation for standardized tests such as GRE, MCAT, PCAT	0%	14%	0%	28.6%	42.9%
	39. Advice and practical preparation on interviews, professional etiquette and job seeking.	0%	14%	14%	28.6%	42.9%
	40. Exposure to role models in my chosen field	0%	14%	0.0%	14%	71.4%
	41. Career development seminars and workshops	0%	14%	0%	14.3%	71.4%
	42. Internship opportunities in my chosen field	0%	14%	0%	43%	29%
Advising by Biology Faculty	During my studies I:					
	43. Met with my advisor at least once per	0%	0%	0%	14%	86%
	44. Found my advisor to be accessible in person, by phone or email.	0%	0%	0%	28.6%	71.4%
	45. Was accurately advised on core requirements of my major	0%	0%	14%	0.0%	85.7%
	46. Was accurately advised on elective components of my major	0%	0%	0%	14%	86%
	47. Was satisfied by the quality of advising I received.	0%	0%	0%	14.3%	85.7%
		Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Support Services	During my studies I:					
	48. Was satisfied by the library resources (e.g. journal access) for my studies	0.0%	0%	0.0%	28.6%	71.4%
	49. Was satisfied by the information resources (e.g. computer/printing access) for my studies	0.0%	0%	0%	14.3%	86%
	50. Was satisfied by the quality of tutoring services available to me	0%	0%	0%	42.9%	57.1%
	51. Was satisfied with the services and guidance provided by the Dean	0%	0%	14%	29%	57%
	52. Was satisfied by the services and guidance provided by the divisional support staff (secretary, lab assistants)	0%	0%	0%	29%	71%
Overall Evaluation	53. I would recommend this program to a friend	0%	0%	0%	29%	71%

3.2. Biology Strengths/Weaknesses.

Strengths	Weaknesses
Teachers are always available for help	Some professors teaching what areas they don't know
Most professors demonstrated knowledge of their field	Comparative Anatomy?! Why not human
Lots of scholastic opportunities present	Unavailability of classes (Before Physio only every other year?!)
Opportunities to participate in research	Equipment
Teachers are very willing to give extra time to help	Finishing lab experiments
Laboratories (new)	Some teachers are knowledgeable in their field but some can't teach
They have knowledgeable teachers	You can tell which teachers are teaching a class in which is not their tone
The courses are challenging	Some teachers are a lot more knowledgeable than others
Very interactive; nice new labs	Not all professors teach at same level
The teachers know you as not just a student but a person	I didn't learn much from Physics
I was able to graduate in 4 years because of the help given to me by my advisors	Limited funding
The Faculty (always available & friendly)	Limited resources in laboratories
One on one interaction with professor	Schedule conflicts (1 class offered every other year, or labs/times of 2 classes overlap)
Enabled me to network with mentors	Students will not receive the same level of teaching for the professors
A smaller student to teacher ratio, allowing for student to meet with, ask questions & receive guidance from professors	Some classes of the same subject are easier than others
An integration of classroom & community environments	The program needs a workshop on writing effective research papers and on scientific writing
Opportunities to conduct research & attend national meetings, thus increasing networking skills necessary in life!	
The professors are readily available to address the student's personal academic issues	
Students are encouraged to explore different types of research	
Each student is given opportunities for research experience	

Comments:

Try an incorporate support disciplines in biology classes. I have been out of school for 2 years. Within those 2 years I have forgotten a lot. So, maybe there could be a review handbook or class. Or maybe there should be a comprehensive test every year. And made the students take it over and over until they get a suitable grade. At least the test will let the students know what they should know as a biology major.

.....

The Chaminade Biology department was great. I couldn't have asked for better people to surround myself with in such a positive way..... Thanks for everything ☺ ♥

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This is a good school with lots of aloha spirit. Everyone seems to care about everyone else.

4. Rubric and Benchmark Analysis.
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4.1. Background to Rubric Development.

The Division of Natural Sciences and Mathematics at Chaminade (DNSM) offers majors in Biology, Forensic Sciences and Computer Science. Program level assessment strategies have been designed by faculty and comprise, overall, three discrete components:

1. A subject specific Comprehensive Examination

- delivered as a component of the Divisional Exit Instrument in the semester prior to graduation;
- comprises questioning on key content in the Major and supporting science and math disciplines;
- questioning has been designed to link to the Program Learning Outcomes for Major and support disciplines.

2. An indirect survey component

- delivered as a component of the Divisional Exit Instrument in the semester prior to graduation;
- comprises questioning on student's perception of their acquired knowledge and skills in Major and support Disciplines, as well as questioning designed to gather student perspective on the performance of the DNSM as providers;
- where applicable questioning is mapped to PLO.

3. A Capstone Experience

- designed to provide a forum for students to provide a demonstration of workplace ready technical and intellectual skills;
- exemplified by peer-reviewed poster presentation and internships performed in research or appropriate professional settings.

4.2. Performance Rubric.

A rubric has been developed that allows us to explicitly define whether a student has achieved the PLO based on the assessment of the three components defined above. This rubric allows us to set quantifiable benchmarks for the attainments of our graduating seniors.

	Exemplary	Very Good	Proficient	Substandard	Unacceptable
Component 1					
Comprehensive Examination	Consistent demonstration of knowledge base and problem solving skills that reflect attainment of PLO for major and LO for support disciplines; Wide-ranging knowledge of both basic and advanced concepts and ability to consistently solve complex problems.	Usually able to demonstrate knowledge base and problem solving skills that reflect attainment of PLO for major and LO for support disciplines; Some gaps in factual knowledge concerning minor areas of concept and some inability to solve complex problems.	Demonstrates knowledge base and problem solving skills that reflect attainment of PLO for major and LO for support disciplines but not consistently; Major concepts are known but some advanced conceptual knowledge is lacking; Problem solving skills are adequate.	Does not demonstrate knowledge base and problem solving skills that reflect attainment of PLO for major and LO for support disciplines; Knowledge of both basic and advanced concepts is lacking, and only straightforward problems are solved.	Does not demonstrate knowledge base and problem solving skills that reflect attainment of PLO for major and LO for support disciplines; Unable to demonstrate even basic conceptual knowledge and cannot engage in problem-solving at any level.
Benchmark	<i>Mean score 85% or greater on combined major and support discipline examination</i>	<i>Mean score 75% or greater on combined major and support discipline examination</i>	<i>Mean score 65% or greater on combined major and support discipline examination</i>	<i>Mean score 55% or greater on combined major and support discipline examination</i>	<i>Mean score <55% on combined major and support discipline examination</i>
Component 2					
Indirect Survey	Student perceives that extensive knowledge has been gained in a variety of subject areas	Student perceives that a wide range of knowledge has been gained in a variety of	Student perceives significant gaps in subject areas in both major and support	Student perceives lack of provision in several areas of instruction relevant to major and	Student perceives lack of provision in numerous areas of instruction relevant to

	in both major and support disciplines; Student has received professional development opportunities and has received academic and technical support enabling successful completion of a degree.	subject areas in both major and support disciplines, with some under-served areas; Professional development opportunities and support have been generally available.	disciplines where instruction has been provided; Professional development opportunities and support have been not been widely available.	support disciplines; Professional development opportunities and support have been available but there are some areas of inadequacy.	major and support disciplines; Professional development opportunities and support have been unavailable.
Benchmark	<i>85% or more responses comprising 'strongly agree or agree'</i>	<i>75% or more responses comprising 'strongly agree or agree'</i>	<i>65% or more responses comprising 'strongly agree or agree'</i>	<i>55% or more responses comprising 'strongly agree or agree'</i>	<i>less than 55% Responses comprising 'strongly agree or agree'</i>
Component 3					
Capstone Experience	Student exhibits skill set commensurate with their post-graduate professional setting when evaluated by faculty and external peer-review.	Student exhibits skill set acceptable in post-graduate professional setting when evaluated by faculty and external peer-review; Some minor areas of professional development or intellectual base are lacking.	Student exhibits skill set that would require some development in post-graduate professional setting when evaluated by faculty and external peer-review; Several areas of professional development or intellectual base are lacking.	Student exhibits skill set that would require significant remediation in post-graduate professional setting when evaluated by faculty and external peer-review; Major areas of professional development or intellectual base are lacking.	Student exhibits skill set that would be unacceptable in post-graduate professional setting when evaluated by faculty and external peer-review; Professional development or intellectual base are not adequate.
Benchmark	<i>Achievement of A grade in Capstone Course or 80% pass rate if pas/fail</i>	<i>Achievement of B grade in Capstone Course or 70% pass rate if pas/fail</i>	<i>Achievement of C grade in Capstone Course or 60% pass rate if pas/fail</i>	<i>Achievement of D grade in Capstone Course or 50% pass rate if pas/fail</i>	<i>Achievement of F grade in Capstone Course or less than 50% pass rate if pass/fail</i>

4.3. Exit Instrument Data Analyzed in light of Rubric

	number of students attaining	
	BIO students (n=7)	FS students (n=12)
Overall mean performance on Comprehensive Exam		
Exemplary (>85)		
Very Good (75-84)		
Proficient (65-74)		
Substandard (54-64)	1	1
Inadequate (<55)	6	11
Performance on CHEMISTRY		
Exemplary		
Very Good	1	2
Proficient	2	
Substandard	1	1
Inadequate	3	9
Performance on PHYSICS		
Exemplary		
Very Good		
Proficient		
Substandard		1
Inadequate	7	11
Performance on MATH		
Exemplary		
Very Good		2
Proficient		
Substandard	1	1
Inadequate	6	9
Performance on BIOLOGY		
Exemplary	1	
Very Good		
Proficient	2	
Substandard	2	2
Inadequate	2	10
Performance on FS		
Exemplary	n/a	3
Very Good	n/a	3
Proficient	n/a	
Substandard	n/a	2
Inadequate	n/a	4

4.4. Exit Survey Data Analyzed in Light of Rubric.

BIOLOGY STUDENTS

Answers indicating 'strongly agree or agree'	316 out of 371 85%
Our Performance rating	"Exemplary"

FS STUDENTS

Answers indicating 'strongly agree or agree'	440 out of 636 69.2%
Our Performance rating	"Proficient"

4.5. Capstone Experiences Analyzed in Light of Rubric

BIOLOGY STUDENTS

Semester	Students taking BIO499	% achieving			Performance indicator per rubric
		A	B	C	
Fall 2007	14	78	22		Very Good
Spring 2008	4	50	25	25	Very Good
Fall 2008	10	70	10	20	Exemplary
Spring 2009	6	83	17		Exemplary
Fall 2009	15				tbd

FS STUDENTS

Semester	Students taking FS487	% achieving		Performance indicator per rubric
		pass	fail	
Spring 2007	4	100		Exemplary
Fall 2007	14	100		Exemplary
Spring 2008	10	100		Exemplary
Fall 2008	8	75	2 pending re-take	Very good
Spring 2009	none	n/a		n/a
Fall 2009	8	tbd		

5. Faculty Reflections and Action Plans.

5.1. Reflection and Action Points on Survey Data Analyzed in Light of Rubric.

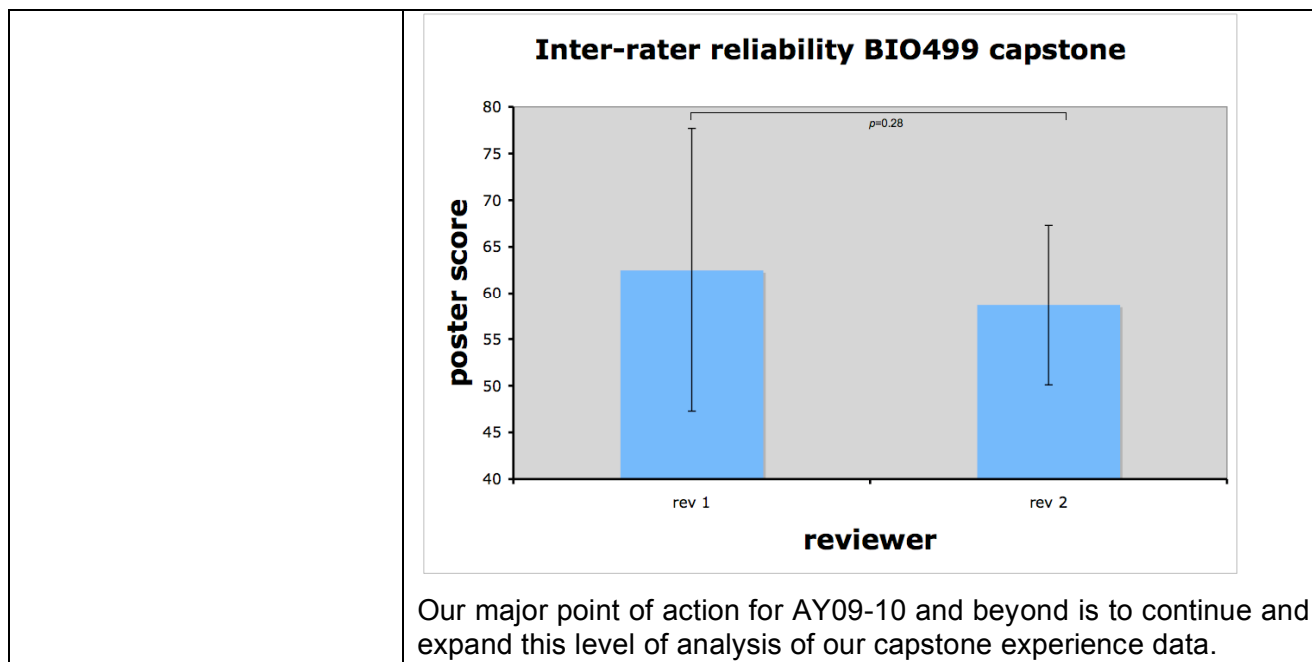
In Biology our performance across the areas assessed by the survey data is exemplary, while in FS 'proficient'. These are overall, satisfactory levels of attainment when the data are viewed in aggregate. A more detailed analysis of the data, however, do provide us with the opportunity to perform fine-tuning of some aspects of our programs and provision of service to our students. Areas that have been flagged for follow-up and some concerted efforts to improve scores are shown below:

Focus Area	Action Point
Service by divisional support staff	Standardized, convenient office hours for purchase of labcoats and manuals; reporting on availability of office staff; attempts by staff to take a personal firsthand interest in students being given the "Chaminade run-around"
Academic preparation for standardized testing	Director of Academic Enrichment programs is instigating a series of preparation classes for MCAT and GRE, Kaplan personnel are offering free courses on campus; FS faculty are evaluating any steps necessary for FSAT preparation.
Exposure to advanced instrumentation	This has simply not been possible due to lack of instrumentation on campus, \$1 million Title III grant (2008-2010) has now purchased sophisticated analytical and biological instruments, their incorporation into curriculum will be monitored and facilitated by faculty training; specific course offerings in CH and FS will now take advantage of new instruments (Trace Evidence and Advanced Instrumentation).
Access to library resources	Online full text access to journals at Chaminade is not commensurate with the quality of the curricula and research offerings that are now present in DNSM; faculty and Dean are in discussion about an approach to this problem through partnership (University of Hawaii, UCSF).

5.2. Reflection and Action Points on Capstone Experiences Analyzed in Light of Rubric.

Since the beginning of analysis in 2007, the performance of student per the rubric for capstone experiences has been either 'Very Good' or "Exemplary" in 100% of the cases. At this time, therefore, we do not feel that there is a pressing need to revise either the process of internship design, administration or evaluation. We have, however, identified one action point for further investigation summarized below:

Focus Area	Action Point																
<p>Inter-rater reliability of capstone experience assessment</p>	<p>Since assessment is primarily by either faculty peer review (poster and paper in BIO499) or internship supervisor report/student reflection (FS internships), it is fair to say that a student's performance may be an amalgam of several different evaluators' viewpoints. The inter-reliability of their evaluations needs to be address both prospectively and retrospectively;</p> <ul style="list-style-type: none"> • <i>Prospectively</i> – via provision of clearly defined rubrics and discussion with co-ordinating course faculty; • <i>Retrospectively</i> – via inter-rater evaluation of scoring using statistical means. <p>An example of this retrospective analysis is shown below – and we intend to widen this type of analysis in AY09-10 and beyond.</p> <div> <table border="1"> <caption>Inter-rater reliability BIO499 capstone</caption> <thead> <tr> <th>Reviewer</th> <th>Poster Score (Mean)</th> <th>Lower Bound</th> <th>Upper Bound</th> </tr> </thead> <tbody> <tr> <td>rev1</td> <td>60</td> <td>45</td> <td>75</td> </tr> <tr> <td>rev2</td> <td>63</td> <td>55</td> <td>72</td> </tr> <tr> <td>rev3</td> <td>63</td> <td>55</td> <td>72</td> </tr> </tbody> </table> </div> <p>In this instance, (FD07, <i>n</i> students=14) no statistically significant difference was present between the three reviewers' analyses of the performances of the individual students, although there was clearly a considerable diversity in absolute scores. Similarly, in FD08 (<i>n</i> students=12), no significant difference in ratings were observed.</p>	Reviewer	Poster Score (Mean)	Lower Bound	Upper Bound	rev1	60	45	75	rev2	63	55	72	rev3	63	55	72
Reviewer	Poster Score (Mean)	Lower Bound	Upper Bound														
rev1	60	45	75														
rev2	63	55	72														
rev3	63	55	72														



5.3. Reflection on Divisional Exit Instrument Analyzed in Light of Rubric

5.3.1. Faculty Reflection

FACULTY GROUP A.

- The main body of the discussion revolved around ways to improve the NSM exit instrument, especially on discipline related questions. Some views were expressed on whether any change in type and content of questions would actually invalidate the results obtained to date.
- Majority of the group agreed that the validity of the instrument remains questionable in view of the small sample size anyway; therefore, keeping the questionnaire identical is less significant than improving questions/format, etc.
- The reliability of the answers was addressed in reference to student effort. Since there was no immediate benefit to students answering questions correctly, it could not be ascertained if students tried hard enough to complete the questionnaire/test to the best of their ability. There were suggestions to include some standard general survey questions in the exit instrument to test the extent of the effort involved. Other suggestions included having the exit instrument in the catalog as a program requirement and letting students know well in advance the date and the time of the "event", similar to a final exam.
- The rest of the discussion focused on disciplines in which students scored consistently lower. Since the physics questions were prepared by David Cooke, who no longer teaches regularly, there was some uncertainty whether these questions were representative of the material currently being taught. Some specific points were raised such as allowing student use calculators (since physics questions involved some calculations). Whereas some students feel very comfortable with sophisticated calculators, this might be envisioned as an unfair advantage against those who lack such skills. Allowing students standard calculators might not solve the problem either, in the event that some students might be intimidated using an unfamiliar calculator.
- It was suggested that there should be a consensus of opinion across the disciplines about the general philosophy of the questions. There should be less emphasis on detail but more on

assessing the overall principles of the disciplines, and if at all possible, students should be assessed on areas bordering more than one discipline.

- Some in the group felt that however imperfect it might be, there is a “take-home message” from the exit instrument. The test scores for all core disciplines, not just physics, are low. This might indicate a lack of emphasis in longer term retention of knowledge. The division might adopt certain policies to highlight the importance of proficiency in individual disciplines in promoting excellence in biomedical sciences.

Faculty GROUP B

1. It was the general feeling of the group that the results of the data from the Divisional Exit Survey did not present an accurate picture of the competence of our graduating students in the areas tested for both Biology and Forensic Sciences. It was noted that postgraduate performance by students either in graduate study or during employment that has been observed would not be possible if their level of understanding was as low as indicated by the results of the instrument. While students from both groups showed greater levels of competence in their respective major, as would be anticipated, their performance in the support areas were not satisfactory. Several factors were considered that might contribute to this. First was the question of “How seriously do the students actually view the examination?” At present, there is no actual incentive for the student to prepare for the examination. There is not reward for scoring well or penalty for poor performance. Both Goff and Iwamoto indicated that students while taking the examination did not appear to be taking the examination seriously and many were not prepared for the examination portion of the survey. Another factor considered is the timing of the examination. At present, this examination is given at the end of the semester, immediately prior to finals. As the student’s grade in the final course examinations determines their graduation and the survey has no effect, the logical approach is to focus on the course finals. A third consideration is the period of time that has elapsed between the examination and completion of the course work. In many instances, students are being tested on materials from courses they completed 2 years prior to the examination. It was thought that administering the basic science/mathematics portion of the examination earlier in the student’s program might significantly alter these scores.

2. There were several weaknesses noted in the composition of the instrument.

- A. Chemistry questions were heavily slanted toward Organic Chemistry and little attention paid to physical aspects of chemistry.
- B. Physics questions dealt only with mechanics and other areas of physics were not covered.
- C. Separate questions should be provided for both Physics and Mathematics, dependent on the requirements for the degree sought. At present there is no distinction between programs requiring Calculus and those that do not.
- D. It was felt that the survey portion should be separated from the examination portion of the instrument, with the survey portion being available on-line. Students would still be required to complete the survey prior to graduation but this could be separate from the examination.

3. There were several ideas presented for improvement of the instrument. Some of these have been mentioned above.

- A. The instrument could be broken into 3 sections, each taken separately.
 - The survey portion of the instrument would be taken on-line during the semester prior to graduation and must be completed in order to graduate.
 - The basic subject portion of the examination would be taken and passed prior to the student being allowed to declare their major. The passing score was not discussed during our deliberations.

- The examination in the major would be taken during the semester prior to graduation. The timing of this examination may prove problematic due to course content and examination scope as students do not always move through the major requirements in a uniform manner. It was suggested that the examination be given prior to the start of the semester.
- B. The examination portion would take the form of a comprehensive examination that must be passed in order for the student to graduate. This would involve determining the passing score, number of times a student can attempt the examination and logistics of administration.
- While the current examination is a start point, we believe it will need revisions and alterations in order to accurately reflect the state of knowledge of our graduating students for both their major field and general knowledge in the areas covered within the DNSM.

5.3.2. Immediate Action Points for AY09-10 in Light of Reflections on Divisional Exit Instrument

Action Point	
#1	Design and deliver exit survey using online resource such as Survey Monkey
#2	Deliver comprehensive exam to seniors in the semester before graduation
#3	Make taking the comprehensive exam a requirement for completion of graduation clearance
#4	Continue to engage faculty on improvements/content for the comprehensive examination