



CSU Channel Islands
DRAFT -August 18, 2010

Pilot Conversion Review Template for External Review Site Visit and Report

The external review of the CSU Channel Islands graduate programs will serve as a key document in the University's request to the CSU Office of the Chancellor and the California Postsecondary Education Commission (CPEC) to convert the program from pilot to regular status.

The external reviewer is asked to use this template and rubric to assist in preparing for and organizing the site visit. **The completed template will constitute the reviewer's final report.** The template parallels the organization of the program's pilot conversion report, emphasizing the CPEC criteria for review contained in it.

The reviewer is invited to provide comments and recommendations. Comments can include reference to information or conversations, observations about campus practices, and statements about program strengths, weaknesses, and areas of improvement. Recommendations should be specific suggestions for improvement, irrespective of whether that improvement should be initiated at the program, division, or university level. In this fashion, the review will serve the program's goal of assessing program strengths and student learning. *The reviewer need not provide a recommendation after each item.*

Finally, at the end of the **Pilot Conversion Review Template** the reviewer will find space to provide a recommendation whether the program should be converted from pilot to regular program status and make summary comments.

CSU policy on pilot programs and their conversion are found at www.calstate.edu/app/documents/pilot_procedures.pdf and www.calstate.edu/app/documents/program_modification/pilot_conversion.pdf

External Reviewer Information:

Program Name: MS Mathematics	Date of Site Visit: October 27 and 28, 2010
External Reviewer Name: Magnhild Lien	Affiliation: CSU Northridge

RUBRIC ASSESSMENT SCALE

STAGE	DESCRIPTION
Initial	The program is at a preliminary stage in this practice. The program shows the need for additional policies, resources, or practices in order for it to provide the education program to which it is committed or aspires. Insufficient data is available to make determinations.
Emerging	The program partially satisfies the criterion. Some data is available documenting this dimension. The program has many, but not all, of the policies, practices, and resources it needs to provide the educational program to which it is committed or aspires.
Developed	The program satisfies this criterion, with developed policies and practices. The program has the availability of sufficient resources available to accomplish its program goals on this dimension. Data demonstrates accomplishment of this criterion.
Highly Developed	The program fully satisfies this criterion. The program may serve as a model and reference for others on campus. The program's practices, policies, and/or its resources contribute to program excellence on this dimension.

Pilot Conversion Review Template

Instructions: Narrative responses should be made in the "Comments and Recommendations" sections below each criterion for review. Please enter responses in paragraph form. Text boxes will expand as information is entered. Recommendations are not required for every section. Reviewers may indicate an assessment state for each criterion using the rubric scale above.

I. Student Demand and Societal Need		
CRITERION FOR REVIEW	INQUIRY	Stage
A . Societal Need	Has the program established that there are sufficient employment opportunities for graduates?	Emerging
<p>Comments: Anecdotal evidence suggests that employers in the region seek out graduates from the MS program. One specific example is from Oxnard Community College where they are very interested in Master's students from CSUCI – they even indicated that they would hold a position for a graduate from the program. Graduates teach at Ventura and Moorpark colleges as well as at California Lutheran University. As of this date, about 1/3 to 1/2 of the graduates of the program teach at community colleges. This compares well with MS programs in mathematics at other CSUs. Community College teaching is popular goal for graduates from those programs. Since CSUCI is the only CSU campus in Ventura County, the community colleges in the county are bound to look to CSUCI for its faculty.</p> <p>Data from Georgetown University Center on Education and the Workforce (CEW) indicated that the number of Mathematical Sciences occupations is expected to grow by 20% in the next decade. More data is available on page 14 of the Department's Pilot Conversion form.</p> <p>Recommendations: When the program started, the Department received many letters of support from a variety of potential employers in the region. Several of the letters indicated that there is a great need for people with advanced mathematical, computational and computer skills to work at the technology based companies in Ventura and Santa Barbara Counties. I would urge the Mathematics Department with support from the University to get back to these companies and others to find out 1) if they have hired any of the graduates of the MS program and 2) would they hire a graduate from the program in the future and if so what particular skills are they looking for in their employees. This would not only identify potential employers for the graduates but also inform the program as to what kind of courses they should offer.</p>		

B. Student Demand	Does the program provide evidence of student interest in enrolling in the program?	Developed
	Does the program provide a list of other CSU and/or neighboring campuses offering the program?	Developed
<p>Comments: The pilot MS program in mathematics at CSUCI was welcomed by students from Ventura County and definitely filled a void. None of the nearby private universities and colleges offer graduate programs in mathematics. The closest UC and CSU campuses with graduate programs are In Santa Barbara and Northridge and for some students that would be too far to travel. Several of the graduate students I spoke with on my visit to the campus informed me that they would not have pursued a graduate degree had it not been for this program.</p>		
<p>Recommendations: I strongly recommend that the pilot MS program in mathematics be converted to a regular program. The program does not only serve a need in terms of location – it also offers a unique curriculum with an interdisciplinary focus.</p>		
C. Program Distinctiveness	Is the program distinctive from the graduate programs listed above and provide for the advancement of the field?	Developed
<p>Comments: The interdisciplinary focus of the program distinguishes it from the MS program at CSUN for example. The fact that it is different from the CSUN program, should allow it to grow by attracting students from a broader geographical region.</p>		
<p>Recommendations: see section III</p>		

II. Program Purpose and University Mission		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Program Mission and Operating Practice	Is the graduate program appropriate to and supportive of the institution and the division's mission?	Developed
	Does the program have organizational structures and procedures for its key activities such as advising, scheduling, and program development?	Developed
<p>Comments: The MS Program in Mathematics is clearly aligned with “Placing students at the center of the educational experience, California State University Channel Islands provides undergraduate and graduate education that facilitates learning within and across disciplines...” Furthermore, it is designed to facilitate the Mathematics Department’s Learning Outcomes. For example “Demonstrate critical thinking, problem solving, and advanced mathematical skills by identifying, evaluating, analyzing, synthesizing and presenting fundamental and advanced mathematical and computer science issues and their applications” is and should be a goal for graduates of the program which is met by the completion of the Master Thesis or Masters Project.</p> <p>The program director, Cindy Wyels, who has been in that position since the pilot program started in fall 2005 has done a wonderful job in getting the program off the ground. She meets regularly with the students in the program for advisement purposes. In addition she is the point person for potential students. She responds to all inquiries about the program.</p> <p>The Director works closely with the Department Chair planning the semester by semester course offerings. She has prepared a MS in Mathematics course schedule, Fall 2010 – Spring 2013, displayed nicely in a grid, which is available on the Program’s website. Electives and special topics courses round out the schedule. What particular courses to offer are determined semester by semester and are based on demand. To determine demand for the courses, students are surveyed about their likelihood to take particular courses. The director uses SurveyMonkey to conduct these surveys. For example the result of a poll taken earlier this year indicated that 7 students would definitely and 6 students were likely to enroll in Math 570 – Combinatorics for Spring 2011, whereas only 4 students indicated either of those preferences for a second course Math 587. Based on this information, Math</p>		

570 is listed as the special topics course in the Spring 2011 schedule,

The Program Director was not a faculty member at CSUCI when the MS in Math was proposed and hence was not part of the planning process. However, she has worked with the original planning team, 3 math faculty, including the Department Chair, 2 faculty from computer science, one from physics and other math faculty in further developing the program.

Recommendations: Since the program is run through Extended University, much of the support comes from that division. It would be very helpful if the program director has adequate access to enrollment data. I would urge the Dean of Extended University to talk with the program director about exactly what she needs.

Since most of the graduate programs are run through Extended University, it in essence serves as the graduate division for the campus. I highly recommend that the University establishes a separate Center for Graduate Studies with a Director of Graduate Studies. Part of the Title 5 Grant money just received from the Department of Education could be used as seed money for this. Having a Center of Graduate Studies in place would be helpful when several of the academic MS programs moves from self-support to state –support.

One of the tasks for the Center of Graduate Studies could be to write a handbook for directors or graduate programs and one for graduate students. The former would be very helpful for faculty when they take on the position as graduate program director. One should not assume that the current directors will stay on forever. The following link connects to a graduate student handbook at CSUN. <http://www.csun.edu/graduatestudies/graduatestudies/documents/new-booklet2010.pdf>. Notice much of the material in this handbook could be used in a handbook for graduate program directors as well.

I understand that the Extended University does a survey of all the students every year. From this survey they have learned that adult learners prefer to take classes that meet once per week. This may not be the optimal solution for mathematics courses, but one will not really know unless we find out from the students as well as the faculty. If it is possible to have some of the questions on the survey form directed to specific programs one could learn what the preference would be. I suggest the Extended University work with the program director in formulating the additional questions on the survey. I would also suggest that the Math Department be allowed to consider creative scheduling based on the students needs and desires as well as what makes sense pedagogically.

Some concern was raised about students who are still in the program but are not registered for any courses while they finish their thesis. At CSUN students in that category used to be able to sign up for a Special Masters Registration for a minimal fee. Unfortunately, that is no longer an option. Currently students who have already enrolled in (Thesis/project) and were given a grade of "RP" but still require an additional semester to continue working on their thesis may enroll in the Culminating Enrollment with department approval. This allows the student to remain enrolled in the University and provides library privileges, but not health center services, and has no unit value. The fee is \$265 and is paid to the College of Extended Learning. This approach may not be very attractive to students at CSUCI since the graduate program is on self-support and the students are not saving any money by doing this. However, when you switch to state-support, this would give students a less expensive alternative to enrolling full-time or half-time and paying tuition and fees.

Many of the students in the MS program in mathematics work as teaching associates. When the program moves to state-support, I recommend that the University finds a way to give tuition waivers for some of the TAs. At CSUN, the Office of Graduate Studies gives two tuition waivers per department each semester.

III. Existing Programs in the Field		
CRITERION	INQUIRY	Stage

FOR REVIEW		
A. Program Distinctiveness	Is the program distinctive from the graduate programs listed above?	Emerging
Comments: The interdisciplinary focus of the program distinguishes it from the MS program at CSUN.		
Recommendations: I recommend that the department identify what components of the program distinguishes it from MS programs at nearby universities and highlights those when recruiting. This may involve some tweaking of the curriculum as well. I truly believe it should be an applied/interdisciplinary program. This however should not exclude offering courses that will allow students to prepare for a Ph.D. program.		

IV. Achieving Educational Outcomes		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Curriculum Requirements and Expectations for Learning	Does the program's curriculum and degree requirements reflect high expectations of students?	Developed
	Is that curriculum reflective of current standards in the discipline?	Developed
<p>Comments: Comments from both the AVP of Extended University and some of the students that the courses are challenging indicate to me that the department has high expectations of the students. The students are being pushed to extend themselves beyond the standard course work and will benefit tremendously from this experience. Through the Graduate Seminar the students are exposed to a myriad of topics and they all have to write a short report on each presentation, which is then shared with everyone in the seminar (online).</p> <p>The students are expected to demonstrate depth and understanding when writing a Masters Thesis or Masters Project. They will emerge from the program with a solid background in the area of mathematics they chose to concentrate on. There is both a written and an oral component to the culminating experience. The Department is facilitating both by providing guidelines for writing a thesis/project and requiring students to present their work in the Graduate Seminar. This prepares them for an oral defense before the thesis (project) committee.</p> <p>The curriculum is sufficiently broad in scope to allow students to prepare for work in the high tech industry, community college teaching or further studies in a doctoral program. The changes that were made to the core courses, i.e. adding Math 513 – Advanced Algebra to the list of courses to choose from and the requirement that two out of the three core courses must be in mathematics, aligns the program better with standards in the discipline. The vast array of elective courses certainly meets the standard for applied and interdisciplinary masters programs.</p>		
<p>Recommendations: In an effort to attract students from nearby industries and also ensure that these companies hire graduates from the MS program in mathematics, you may want to design one or two elective courses that address the specific skills needed in these jobs. (see recommendation under section I). It may be that the courses you have already deals with this, but I would make an effort to find out if what you teach the students meshes with what the employer wants. One benefit from offering a few of these "job specific" courses, is that you may find that current employees (not in the masters program) sign up for the courses and hence increase course enrollment. This could be really beneficial once the program moves from self support to state support since these participants who are not in the program would register for the courses through Extended University and thus generate some revenue.</p>		

B. Maintenance and improvement of Quality	Does the program regularly collect course and program learning data?	Emerging
	Is that data analyzed, available, and used for program improvement?	Emerging
<p>Comments: The culminating experience in the program, the Masters Thesis/Project, is a way for the students to demonstrate that they have met the stated learning objectives. Through all stages of the program the students are evaluated, through tests and general performance in the courses and in the graduate seminar. The Masters Thesis/Project is carefully scrutinized by the thesis/project advisor following the criteria laid out in the following document http://math.csuci.edu/masters/thesis/process_criteria.mht .</p> <p>The department has used SurveyMonkey on several occasions to get feedback from the students on the program and its effectiveness. This has resulted in modifications to the program. For example, requiring that two out of the three core courses must be math courses came about as a result of analyzing data collected on the program.</p>		
Recommendations:		
C. Timeliness of Degree Attainment	Do students in the program attain the degree in a timely fashion?	Highly Developed
<p>Comments: The data provided to me indicates that students are graduating in a timely fashion. Some of the people who started in Fall 05 graduated in 4 years, but some graduated sooner. Considering the program was brand new then, this is a pretty good record. The students who started later seem to graduate in 2 or 3 years. This compares well with what happens in the much more established MS program at CSUN. All the active students who entered the program in Spring 09 or Fall 09 have already identified their thesis/project advisors. This indicates that they are within 12 months of completing the program (based on the timeline found on the MS in Math website http://math.csuci.edu/masters/thesis/timeline.htm).</p> <p>Four students left the program before graduating in order to start in Ph.D. programs. This is common in the CSUs. These are students who are reluctant to start in a doctoral program immediately after completing a bachelor's degree often feeling insecure about their ability to do advanced mathematics. Having the opportunity to take a few graduate courses in mathematics at the Masters level allows them to prepare for the rigor of a doctoral program. They do not necessarily need to complete the MS in order to attain that boost in their confidence level - so staying for one year may be enough. Thus these students are well served by the MS program in math and it does not reduce the quality of the program and its ability to graduate students in a timely fashion .</p>		
Recommendations: Being a thesis/project advisor is very time consuming and the faculty are often working an overload to accommodate the students. I found the faculty to be very generous with their time (this was also reported by the students) and seemed genuinely exited about working with the graduate students. If the program is state supported it might be easier to compensate the faculty for directing theses and projects. Thus I recommend that the program be moved to state support as soon as possible.		
D. Involvement of Students in Curricular Activities	Are students active participants in the learning process? Consider whether the program provides opportunities for students to participate in curricular-related activities, such as research, laboratory, and creative opportunities.	Developed
	Does the program require an appropriate culminating experience for those completing the graduate program?	Highly Developed
<p>Comments: Students' active participation in the courses varies from instructor to instructor. Some instructors assign several hands-on projects during the semester in courses that are more conducive to this kind of learning. One faculty member indicated that this semester the students are responsible for presenting part of the material in the course. With guidance from the faculty the students prepare lectures on assigned topics.</p> <p>The Graduate Seminar provides an avenue for students to give a mathematical talk - they present their Masters Thesis/Project there. It is in the Graduate Seminar that the students learn how to ask mathematical questions and write short reports on topics often unfamiliar to them. Students take turns being responsible for the weekly seminars. The Graduate Director invites</p>		

the speaker, often a mathematician from another campus or local industry. The student in charge will look up information about the person, get an abstract for the talk, which is distributed to the rest of the class, introduce the speaker and write a thank you letter to the speaker. There is an online forum where students in the class write pre-questions about the topic based on the abstract and write a short report after the talk.

The Masters Thesis or Masters Project, which I discussed earlier in this report is an appropriate culminating experience for students in the MS program. It takes a lot of time and effort for the students and the faculty advisors, but I believe it is a more enriching experience than taking comprehensive exams that is often used as the culminating experience in MS programs in mathematics.

Recommendations: Having students do Masters Theses/Projects is more time intensive than comprehensive exams and in order to allow all students have this experience the department could benefit from hiring more faculty.

V. Program Costs and Resources		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Faculty Resources	Does the program have faculty in sufficient number, and with appropriate rank, qualification, and diversity, to support its academic program in a manner consistent with its objectives?	Emerging
<p>Comments: All the current tenure-track mathematics faculty and one of the two physics faculty in the Department are teaching and advising in the program. In addition to them, several part-time and full-time lecturers teach courses in the program and serve as advisors. The program is clearly dependent on the non-tenure track faculty to cover certain courses, in particular in some areas of statistics. Since those faculty members are temporary, it would be beneficial to hire more tenure-track faculty in order to sustain the program.</p> <p>Since the program is offered through Extended University, there are some concerns on the part of the junior faculty about teaching graduate courses. The retention, tenure and promotion process requires that a faculty member submit student evaluations from a fixed number of courses per year. However, the faculty contract does not allow student evaluations from courses taught in EU to count towards the minimum number of evaluations required. A faculty member who is going through the RTP process may choose to teach undergraduate courses instead, thus reducing the number of faculty available for teaching in the graduate program.</p> <p>Recommendations: I recommend that the Department hire a tenure-track faculty in statistics to help sustain a growing graduate program and also reduce its dependence on temporary faculty to teach certain courses. If possible, to avoid the concern expressed by junior faculty about teaching courses offered through EU, hire at advanced rank.</p>		
B. Professional Staff	Does the program employ professional staff --support coordinator, technicians, lab assistants --sufficient to support the academic program?	
<p>Comments: The program director is a faculty member in the Math Department. There is no other professional staff employed directly for the graduate program.</p> <p>Recommendations:</p>		
C. Fiscal and Physical Resources	Does the program have the budgetary resources needed to support its educational program?	Developed
	Are its facilities, including offices, labs, practice and performance spaces, adequate to support the program?	Developed
D. Information Technology and Library	Does the program have access to information resources, technology, and expertise sufficient to deliver its academic offerings and advance the scholarship of its faculty?	Developed

<p>Comments: I refer to a memo from the Dean of Extended University, which clearly indicates that the resources needed to support the program are sufficient.</p> <p>The Extended University fully reimburses the State for tenure track faculty teaching in the MS program. Part-time faculty are hired on a course-by-course basis. As the program grows and it moves to State support, resources will be funded by student fees as well as other state funding.</p> <p>Student fees reimbursed to the State from Extended University provide sufficient resources for the use of classroom space.</p> <p>The library subscribes to the major database and online journals in the field of mathematics, including MathSciNet, Wiley Interscience and Science Direct. I agree with the Dean of Library that this collection meets the research needs of students in the MS program in Mathematics. Articles that cannot be found at the library can easily be obtained by interlibrary loans.</p>		
<p>Recommendations: Move to State support as soon as it is economically feasible. Area professionals who take MS courses but are not officially in the program will continue to take the courses through Extended University and will add additional resources to the program.</p>		
E.. Community Involvement and Liaison	If appropriate, does the program have an advisory board or other links to community members and professionals? Does the program use community professional input for program improvement.	Initial
<p>Comments: It is not customary for MS programs in mathematics to have an advisory board.</p>		
<p>Recommendations: As I discussed earlier in the report (section I), using input from community professionals for program improvement is something the Department may consider.</p>		

VI. Advancement of Knowledge and Program Planning		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Scholarship	Does the program contribute to the growth and development of scholarship?	Developed
<p>Comments: While scholarship is developed throughout the program, there are two major components of the program that contribute most to the growth and development of scholarship. The Graduate Seminar, through its invited speakers, introduces the students to a variety of topics in mathematics, many of which they have not seen in their graduate courses. Since the students are required to pose questions about the topic and write a report on the content of the presentation this helps the students develop their scholarship skills. The Masters Thesis or Project is the part where students are not only doing research but also learning how to present their work in a cohesive manner and write a professional paper. I see that at least one of the students has published his thesis. While this is not required by everyone and not normally expected in masters programs in mathematics, seeing that it happens is a testimony to the quality of the CSUCI MS in Mathematics program.</p> <p>The fact that all students have to do a Masters Thesis/Project involves the faculty in scholarship as well. In some instances they may have students working on problems in their area of expertise and together they explore new frontiers.</p>		
<p>Recommendations:</p>		
B. Program Planning	Does the program engage in planning activities that identify its academic priorities and their alignment with the division and the University?	Emerging
<p>Comments: The program has an interdisciplinary focus and hence it involves working with areas outside of the Department of</p>		

Mathematics. In particular the program coordinates with the MS program in computer science since many of the elective courses are from computer science.

Recommendations: In the future, when the MS program in mathematics moves to State support, the University needs to have a graduate division that oversees all graduate programs. A good use for the Department of Education - Title 5 grant, which was just received by CSUCI would be to establish a Center for Graduate Studies, with the expectation that the administration would sustain it when the grant money is gone.

VII. Recommendation Concerning Conversion from Pilot to Regular Program Status:

I was very impressed by the status of the MS pilot program in Mathematics at CSUCI. After five years, some of them leaner than others, the program is pretty healthy. This semester (Fall 2010) there are 24 active students in the program, with 5 of them finishing their thesis, probably graduating this semester or Spring 2011. If the number of active students stay at this level or go up a little this is a pretty good showing relative to the size of the student population. Compare this to the graduate program in mathematics at CSUN; we have 60 active students and the student population is around 35,000 and FTES around 24,000.

The students spoke highly of the program. They praised the faculty for their commitment to the program and their willingness to help the students. There is a definite need for an MS in Mathematics in Ventura County. The CSUCI should be proud of the program that is currently offered and should work with the Department of Mathematics to make sure it continues.

A good program is one that constantly evolves. I believe that the faculty in the Mathematics Department see that as well. Based on feedback from the students, they have already made improvements to the curriculum and will continue to do so as the need arises. The leadership of the department and the program are keenly aware of the challenges of running a growing program. I believe they have been quite successful in getting it off the ground and wish them all the best as the program expands.

I highly recommend that the MS in Mathematics be converted to Regular Program Status. It has my fullest support and from what I have learned I am sure it will be a successful program.

Submitted by:

Signature: Maynard Li

Date: Nov 12, 2010