



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 Biotechnology and Bioinformatics program (MS-BBI)	Date of Site Visit: October 18-19, 2010
External Reviewer Name: Lily Chen	Affiliation: San Francisco State University

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.

This review is based on my study of the program's self-study and appendices provided by the Office of AVP Stephen Lefevre, and from a two-day visit to the campus on 18-19 October 2010 when I met with faculty, staff, students, alumni, community/industry advisory board members, Extended University, Biology Chair, AVP and Provost, and toured the CSUCI campus and teaching facility. I address my review and comments as set forth in the pilot conversion review template guide.

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?	Highly Developed
<p>Comments:</p> <p>CSUCI, with its close proximity to hundreds of technology intensive companies along coastal highway 101, has a strong impact on the central coast regional economic development. The MS-BBI program was created in response to strong statewide and local industry and student demand; current workforce needs and economic demands further verify a vital need for this program in the central coastal region. The enrollment data that program officials provided to the reviewer indicates excellent employment opportunities with more than 65 graduates either fully employed or accepted into professional programs upon graduation from the program.</p>		
<p>Recommendations: NA</p>		

B. Student Demand	Does the program provide evidence of student interest in enrolling in the program? Based	Highly Developed
	Does the program provide a list of other CSU and/or neighboring campuses offering the program?	Highly Developed
Comments:		
<p>CSUCI is the only 4-year public university in Ventura County that attracts diverse cultural and international students who are interested in pursuing master degree training in the emerging biotechnology industry. Evidence of strong student interest is supported by outstanding enrollment data (Fall 2004/Spring 2005 N= 7 to Spring 2010 N= 82) even when the program operates as a pilot program. Approximate 200 students have been accepted into the program since 2005 from a large applicant pool.</p>		
Recommendations: NA		
C. Program Distinctiveness	Is the program distinctive from the graduate programs listed above and provide for the advancement of the field?	Highly Developed
Comments:		
<p>Although several CSU campuses offer similar master degree programs as part of CSU's system-wide professional science master's initiative, the CSUCI is unique because that the program consists of two inter-disciplines, biotechnology and bioinformatics, in one single program. It offers comprehensive graduate training in course knowledge and practical internal training in four emphases: Bioinformatics, Biotechnology, Biomedical Engineering, Stem Cell Technology and Laboratory Management.</p>		
Recommendations: NA		

II. Program Purpose and University Mission		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Program Mission and Operating Practices	Is the graduate program appropriate to and supportive of the institution and the division's mission?	Highly Developed
	Does the program have organizational structures and procedures for its key activities such as advising, scheduling, and program development?	Highly Developed
Comments:		
<p>The program development has reached its mature state with a well-established mechanism for effective program administrative structure, curriculum delivery, course scheduling, internship placement and student advising. It fully supports the CSUCI's mission in providing interdisciplinary graduate education to a diverse student body with multicultural and international perspectives through integrative approaches designed to engage comprehensive learning through hands-on coursework and internship experience. The program is very successful in supporting the institute's goals in training Californians, and improving the economy and quality of life in the central coast region through education, research innovation and entrepreneurship.</p>		

Recommendations: NA

III. Existing Programs in the Field		
CRITERION FOR REVIEW	INQUIRY	Stage
A. Program Distinctiveness	Is the program distinctive from the graduate programs listed above?	Highly Developed
Comments: Currently, CSU is offering 24 professional science master's programs in 16 fields at 12 campuses. Among them, Channel Island, San Jose State, San Francisco State, Sacramento State, Fresno State, CSU Los Angeles, CSU Pomona, Fullerton, San Diego State and Cal Poly San Luis Obispo offer programs in biotechnology and biomedical sciences. The CSUCI's MS-BBI program provides a unique training opportunity for regional communities since no other university among the neighboring public and private educational institutions offers such an inclusive professional science master's program. The program offers graduate-level training in four interdisciplinary biomedical areas (rather than a single discipline in most similar CSU program) that prepare students for emerging workforce needs and immediate employment opportunities. In addition, the program's courses offered in evenings and weekends are especially attractive to the working adults in the related industry fields and non-traditional students who are seeking career advancements or a new professional prospective.		
Recommendations: NA		

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?	Highly Developed
	Is that curriculum reflective of current standards in the discipline?	Highly Developed
Comments:		

<p>The program develops its curriculum to answer industry, community, societal and student needs. A devoted and effective program director, program coordinators and faculty have worked with Advisory Board members to design and implement industry and workforce-oriented courses that are solidly grounded in science and employ modern technology and laboratory techniques. Main campus and Thousand Oak campus are both equipped with state-of-the art classroom equipment to effectively deliver course materials. The program has a very healthy financial plan that is further magnified with a strong buy-in support from industry, faculty and affiliations, External University and CSUCI higher administrative offices. Students in the program are a good representation of the local population with diverse cultural, economic and ethnic backgrounds who are eager to advance their academic training and career options by enrolling the program. The program's curriculum and degree requirements concisely reflect such high expectations of the students and industry demands. The curriculum, some carried out by instructors from industry-affiliated institutes is perceptibly reflective of current standards in the discipline.</p> <p>The program is particular designed to meet the needs of the working adult population and aims to provide a foundation for professional success by delivering a strong foundation in science as it relates to medical biotechnology, hands-on laboratory experiences and exposure to business management and regulatory issues associated with the industry to students. A program assessment plan (Exhibit 3) clearly lays out critical alignment of both required (Exhibit 3 Table 1) and elective courses (Exhibit 3 Table 2) with 12 identified program goals, which indicates a strong correlation of curriculum and program's mission.</p>		
Recommendations:		
B. Maintenance and improvement of Quality	Does the program regularly collect course and program learning data?	Highly Developed
	Is that data analyzed, available, and used for program improvement?	Developed
Comments:		
<p>The EU collects course evaluations from the students at the end of each quarter and prepares a summary of student evaluations that is made available to instructors and the program director for course assessment and improvement purposes. The evaluation form consists of 20 survey questions that address course content, organization, delivery and effectiveness of the instructors. In addition, there are three additional open-ended questions where students can provide written comments. A program assessment plan that uses evaluation tools such as curriculum analysis, course embedded assessment, graduating student survey, alumni survey and oral presentation evaluation of the internship or team projects is in place in order to effectively collect and assess program goals and learning objectives. The reviewer expects that when effectively implemented the program assessment plan is essential to ensure continue success of the program.</p>		
Recommendations:		
C. Timeliness of Degree Attainment	Do students in the program attain the degree in a timely fashion?	Developed
Comments:		
<p>Since the program inception in Fall 2005, The MS-BBI (including MS-Biotech/MBA) program has enrolled total 198 students with a graduation rate of 65% (based on student enrollment data provided by the program pilot conversion document and program director Dr. Ching-Hua Wang). The graduation rate is strong, judging by the professional nature of student populations (the majority are working professionals with part-time student status), and a longer completion timeline by students in MS-Biotech and MBA dual degree programs. The reviewer recognizes program coordinators' actively monitoring student academic standing and graduation status in order to enhance timely completion of the degree.</p>		
Recommendations: NA		
D. Involvement of Students in Curricular	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	Developed

Activities	creative opportunities.	Developed
	Does the program require an appropriate culminating experience for those completing the graduate program?	Developed
<p>Comments:</p> <p>Several required courses listed on the program curriculum provide inquiry-based and creative laboratory learning opportunity, e.g. BIOL 502 Techniques in Genomics/Proteomics, BIOL 505 Molecular Structure, BIOL 510 Tissue Culture Techniques and Stem Cell Techniques, BIOL 511 Advanced Stem Cell Techniques, BME 501 Fundamentals of Tissue Engineering and Biomaterials, BME 502 Biomedical Instrumentation and Devices: Technology and Applications, PHY 464 Medical Instrumentation. Students have more opportunities to participate in additional curricular-related activities through elective courses listed on the program bulletin.</p> <p>In order to advance to MS candidacy, the admitted MS-BBI students need to enroll in either BIOL 600 Team Project or BIOL 602 Stem Cell Technology Internship or 603 Biotechnology Internship or BIOL 601 Capstone Project for MS/MBA Dual degree to satisfy the CSU requirement for a culminating experience. All courses conclude in an individual final written report (or a team project report in BIOL 600/601) and an oral presentation open to the public at the annual team projects/internships colloquium. Based on review of course syllabi, examples of student written reports, annual colloquium programs, and directly conversation with alumni, students and course instructors, it is evident that the program provides an appropriate culminating experience for students to complete the master's requirement.</p> <p>Several students, including an international student and full-time students without off-campus employment, mentioned that they would like to have more hands-on campus research experience. The program director is in the process of expanding the on-campus research internship opportunity by providing students with research scholarship supports to conduct research projects in faculty laboratories. A stronger upper administrative support to recruit more tenure track faculty hires and to strengthen the campus' research infrastructure development is equally important to address such concerns.</p>		
<p>Recommendations: NA</p>		

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?	Highly Developed
<p>Comments:</p> <p>The program's faculty roster has thirteen full-time faculty members with Ph.D. degrees (Biology N= 6; Physics N= 2, Computer Science N=1, Biochemistry N=1, Management N=2 and MS-BBI N= 1; including 11 tenure-track and 2 adjunct), and twelve part-time lecturers (with Ph.D. or MBA) from the biotech or health industry who are hired on a course-by-course contractual basis through the EU. The breadth of professional expertise and academic merits of the faculty (such as professional training, experience, affiliations, scholarly activities in research and publications strongly support the program's objectives in providing rigorous scientific training in interdisciplinary biomedical areas in biotechnology, bioinformatics, biomedical engineering and stem cell technology with course work and experience in business management and regulatory affairs.</p>		
<p>Recommendations: NA</p>		
B. Professional	Does the program employ professional staff --support coordinator, technicians, lab assistants --sufficient to	Highly

Staff	support the academic program?	Developed
Comments: <p>The program is supported with appropriate staff support. The program has several staff (some are hired through the EU) to coordinate program administration, student admission, course scheduling, evaluation, and teaching lab technical support on the main campus. A separate teaching facility complex in the Thousand Oaks campus is staffed with university personnel during the day and in evening hours when courses are in session. A positive working atmosphere and a spirit of collaborative teamwork among the staff, faculty and students was observed.</p>		
Recommendations: NA		
C. Fiscal and Physical Resources	Does the program have the budgetary resources needed to support its educational program?	Highly Developed
	Are its facilities, including offices, labs, practice and performance spaces, adequate to support the program?	Highly 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?	Highly Developed
Comments: <p>The pilot program has been successfully operated through Extended University (EU) since 2005 as a self-supported program that is adequately sustained through student fees and other non-state funds. The EU will continue to administer the program when it obtains a regular program status. As indicated by a memo from Gary Berg, Dean of Extended University and a meeting conversation with Nick Fuentes from the EU, the program has a strong budgetary foundation with adequate resources available through student fees to maintain and support future growth of the program (which include faculty and staff salaries, equipment, library and information technology resources, classroom, office, and laboratory facilities.) No negative impact on operation and development of existing academic programs at CSUCI is anticipated.</p>		
Recommendations: NA		
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?	Highly Developed
Comments: <p>The program has a well-established Community Advisory Board that includes representatives from local biotechnology companies, research and educational institutions, community colleges, community organizations, the health care industry, the local military base, and the Workforce Investment Board (e.g., the Board consists of scientists and administrators from Baxter Healthcare, Amgen, the Navy, the Ventura County Health Care Agency, and regional hospitals), and is currently chaired by Matthew D. Arnold, MS, MBA and Director of Operations Risk Management at Amgen, Inc. The Board meets regularly to provide input in program development and advancement. In addition, the Board members support the organization of special social and symposium events to provide networking opportunities for students and future employers. Mr. Arnold, a devoted chairperson of the Board, ensured the reviewer that the Board will continue to provide crucial input in MS-BBI program development, improvement and measures to ensure a healthy program outlook.</p>		
Recommendations: NA		

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?	Highly Developed
<p>Comments:</p> <p>The program has established strategic measures and curriculum activity to advance the growth and development of programmatic scholarship. The annual colloquium series feature industry-advised academic partnerships and research scientists-mentored academic internships and attracts the participation of industry leaders, research collaborators, the community, faculty and students. It also fosters innovation, creativity, and scholarly excellence, and encourages community and industry partnerships with the university.</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?	Highly Developed
<p>Comments:</p> <p>As indicated in Provost Dawn Neuman's memo, the program supports the University's commitment to the STEM education, and student career and regional workforce needs. It is nicely integrated with the campus' rising attention to the health disciplines, including a successful undergraduate nursing program and a planned degree program in health science. The program's Advisory Board consists of members from the health care industry who are essential in providing critical advice in developing health science programs and affiliations in the near future.</p>		
<p>Recommendations: NA</p>		

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

The reviewer offers the most enthusiastic support of the MS Biotechnology and Bioinformatics program for the program conversion from pilot to regular program status. The program fully satisfies conversion review criterion, and its academic practices, policies, and firm resources that contribute to program excellence can serve as a model and reference for other similar programs on the CSUCI campus.

Submitted by:

Signature: _____ *Lily Chen* _____

Date: _____ Nov. 22, 2010 _____