Regulatory Affairs
In the Center for Bio/Pharmaceutical and Biodevice Development and the College of Sciences

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General Information

The Center for Bio/Pharmaceutical and Biodevice Development offers advanced degree programs that focus on training students in areas related to development, manufacturing, and marketing of biopharmaceutical, pharmaceutical, and medical device products. The center integrates faculty and programs from various departments. The center addresses research and workforce needs of companies as they make the transition from research and development to manufacturing and production, including the legal, ethical, and regulatory elements that both guide and restrict the industry.

The courses for the degree program are offered fully online through special sessions with enrollment through the College of Extended Studies. Since the degree program is self-supporting, the fee structure for courses is different than for courses in programs that are supported with state funding. For more information on degree program admissions, courses, requirements, and fees visit http://www.cbbd.sdsu.edu.

The degree program provides a comprehensive background in regulatory science necessary for regulatory affairs professionals to competently address regulatory requirements associated with pharmaceutical, biopharmaceutical, and medical device products. Regulatory affairs courses focus on practical applications and approaches for compliance with development, testing, manufacturing and post-marketing surveillance laws and requirements enforced by the Food and Drug Administration.

Upon successful completion of the degree program, students will have detailed knowledge and understanding of current regulations with an understanding for their practical application to the development and commercialization of drug, biologic, and medical device products.

Master of Science Degree in Regulatory Affairs
(Offered through the College of Extended Studies)

The Master of Science degree in Regulatory Affairs is offered through the College of Sciences. The coursework in this curriculum is offered only in special sessions. Students in special session courses enroll through the College of Extended Studies and follow a fee structure that is different from that for regularly matriculated students. For more information, contact the director of the center or call the College of Extended Studies.

This degree program provides a comprehensive background in regulatory science with the additional training and experience required of regulatory affairs professionals to address federal and state regulatory statutes and laws with emphasis on the Food and Drug Administration.

The degree offering focuses on laws and regulations imposed by the Federal government, especially the Food and Drug Administration, related to drug discovery, development, testing, and manufacture of products for commercial distribution. Also included are requirements for ongoing post-marketing surveillance. The degree program will provide students with detailed knowledge and understanding of current regulations and their practical application to the development and commercialization of drug, biologics, and medical device products.

Admission to Graduate Study

All students must satisfy the general admission and examination requirements for admission to the university with classified graduate standing, as described in Part Two of the Graduate Bulletin. In addition, the applicant must satisfy the following requirements before being considered for admission to classified graduate standing by the admissions review committee of the center.

Students applying for admission should electronically submit the university application available at http://www.csumentor.edu along with the $55 application fee.

All applicants must submit admissions materials separately to SDSU Graduate Admissions and to the Regulatory Affairs office.

Graduate Admissions

The following materials should be submitted as a complete package directly to:

Graduate Admissions
Enrollment Services
San Diego State University
San Diego, CA 92182-7416

(1) Official transcripts (in sealed envelopes) from all postsecondary institutions attended;

Note:
- Students who attended SDSU need only submit transcripts for work completed since last attendance.
- Students with international coursework must submit both the official transcript and proof of degree. If documents are in a language other than English, they must be accompanied by a certified English translation.

(2) GRE scores (http://www.ets.org, SDSU institution code 4682);

(3) English language score, if medium of instruction was in a language other than English (http://www.ets.org, SDSU institution code 4682).

Center for Bio/Pharmaceutical and Biodevice Development

The following materials should be mailed or delivered to:

Master of Science in Regulatory Affairs
Director of Regulatory Affairs Programs, CBBD
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-4610

(1) Three letters of recommendation sent from persons who are knowledgeable about the candidate’s potential for success in graduate study;

(2) Applicant essay that describes the applicant’s purpose in pursuing graduate studies in regulatory affairs and relationship to personal and career objectives;

(3) Resume or curriculum vita listing employment or volunteer experience relevant to the proposed new degree major program;

(4) One set of official transcripts (in addition to those sent to Graduate Admissions).

Candidates for admission will typically come from one of the disciplines offered in the life and physical sciences and engineering. In some cases, candidates who have not fully completed the undergraduate requirements may be admitted with conditionally classified standing, subject to space availability, after consideration of those who meet the requirements for classified graduate standing. Students so admitted will be advised as to the nature of their deficiency and the time allowed to achieve full classified graduate standing. If the student’s undergraduate preparation is insufficient, the student will be required to take courses for removal of the deficiency. Courses taken to make up such deficiencies are in addition to the minimum units for the master’s degree and may not be included on the student’s program of study.
Advancement to Candidacy

All students must satisfy the general requirements for advancement to candidacy, as described in Part Four of this bulletin.

Specific Requirements for the Master of Science Degree
(Major Code: 49045) (SIMS Code: 779901)

In addition to meeting the requirements for classified graduate standing and the basic requirements for the master’s degree as described in Part Four of this bulletin, the student must complete a graduate program consisting of a minimum of 39 units as follows:

1. Complete 30 units of required courses.
   - R A 601 Pharmaceutical, Biotechnology, and Medical Device Industries (3)
   - R A 602 Food and Drug Law (3)
   - R A 605 Medical/Scientific Writing for Healthcare Professionals (3)
   - R A 705 Project Planning for the Biomedical Industries (3)
   - R A 750 Quality Improvement Management (3)
   - R A 770 Current Good Manufacturing Practices – General Concepts (3)
   - R A 773 Medical Device Regulations (3)
   - OR
   - R A 774 Investigational and Marketing Applications for Drugs and Biologics (3)
   - R A 779 International Regulatory Affairs (3)
   - R A 781 Ethics for Healthcare Professionals (3)
   - R A 783 Effective Communication for Healthcare Professionals (3)

2. Complete six units of electives from the following courses.
   - R A 696 Advanced Topics in Regulatory Affairs (1-4)
   - R A 771 Current Good Manufacturing Practices – Advanced Topics (3)
   - R A 773 Medical Device Regulations (3)
   - OR
   - R A 774 Investigational and Marketing Applications for Drugs and Biologics (3)
   - R A 775 Clinical Trials: Issues in Design, Conduct, and Evaluation (3)
   - R A 776 Validation Aspects of Drugs, Biologics, and Device Product Development and Manufacturing, Including Computer Related Systems and Software (3)
   - R A 778 Quality Control and Quality Assurance: Pharmaceuticals, Biologics, and Medical Devices (3)
   - R A 797 Research (1-3) Cr/NC/RP
   - R A 798 Special Study (1-3) Cr/NC/RP

3. Complete three units. Students must select Plan A or Plan B in consultation with the adviser.
   - Students electing Plan A must complete Regulatory Affairs 799A (3) Cr/NC/RP. Students selecting Plan B must complete three units in lieu of Regulatory Affairs 799A from the list of elective courses and pass a comprehensive examination.

Advanced Certificate in Regulatory Affairs
(Offered through the College of Extended Studies)
(Major Code: 90701) (SIMS Code: 779902)

The Advanced Certificate in Regulatory Affairs involves the completion of Regulatory Affairs 601, 602, 770, and 781. Regulatory Affairs 601 covers the various steps in the development process for pharmaceutics, biologics, and medical devices, with an understanding of the regulatory impact on this process. Regulatory Affairs 602 provides a basic knowledge of the laws and regulations governing these industries. In Regulatory Affairs 770, students learn the basic concepts of good manufacturing practices. Regulatory Affairs 781 will examine some of the most significant ethical issues confronting healthcare professionals. Courses in the Advanced Certificate in Regulatory Affairs may be applied to the Master of Science degree in Regulatory Affairs. To enroll in this certificate program, call 619-594-6030.

Courses Acceptable on Master's Degree Program in Regulatory Affairs (R A)

Referring to Courses and Curricula of the Division of Graduate Affairs sections of this bulletin for explanation of the course numbering system, unit or credit hour, prerequisites, and related information.

GRADUATE COURSES

R A 601. Pharmaceutical, Biotechnology, and Medical Device Industries (3)
Prerequisite: Chemistry 365.
Pharmaceutical, biotechnology, and medical device industries. Company organization and product development and commercialization associated activities, e.g., drug discovery, chemical synthesis, quality assurance, regulatory affairs, manufacturing, control and marketing.

R A 602. Food and Drug Law (3)
Prerequisite: Regulatory Affairs 601.
R A 605. Medical/Scientific Writing for Healthcare Professionals (3)
Prerequisite: Regulatory Affairs 601.
Writing for development of a new drug or biologic. Emphasis on effective writing of project reviews, research, reports, protocols, and CTDs.

R A 696. Advanced Topics in Regulatory Affairs (1-4)
Prerequisite: Regulatory Affairs 602.
Selected topics in regulatory affairs. May be repeated with new content. See Class Schedule for specific content. Credit for 596 and 696 applicable to a master's degree with approval of the graduate adviser.

R A 705. Project Planning for the Biomedical Industries (3)
Prerequisite: Regulatory Affairs 601.
Complexity of biomedical product development. Projects and strategies for effectively planning and managing them. Understanding and utilization of management and planning strategies as applied to these biomedical product development projects. Strategies for planning, scheduling, and effective management of regulatory affairs activities and related tasks associated with development of a biomedical product.

R A 750. Quality Improvement Management (3)
Prerequisite: Regulatory Affairs 602.
Controlling and facilitating change. Traditional quality tools and process improvement methods applied to biotechnology industry to create strong relationships with management and peers, communicate financial returns from a quality initiative, and selling benefits in a consultative manner.

R A 770. Current Good Manufacturing Practices - General Concepts (3)
Prerequisite: Regulatory Affairs 602.
Current Good Manufacturing Practice regulations to assure quality of marketed products. Application to manufacturer's organization, personnel, facilities, equipment, control systems, production, process controls, laboratory procedures and records.

R A 771. Current Good Manufacturing Practices - Advanced Topics (3)
Prerequisite: Regulatory Affairs 770.
Expanded analysis of current Good Manufacturing Practice regulations to assure quality of marketed products. Discussions of FDA methods of enforcement by inspections of manufacturing establishments.

R A 772. Post-Approval Activities (3)
Prerequisite: Regulatory Affairs 602.
FDA and FTC rules and regulations governing advertising, promotion, and labeling for prescription drugs, biologics, medical devices, and over-the-counter drugs.

R A 773. Medical Device Regulations (3)
Prerequisite: Regulatory Affairs 602.
Laws and FDA regulations for medical devices, in vitro diagnostics, radiological devices, FDA jurisdiction, registration, listing labeling requirements, classification, Investigational Device Exemptions (IDE), premarket approval (PMA) and premarket notification (510(K)). Not a repeatable course. Maximum combined credit six units of Regulatory Affairs 773 and 774 applicable to a master's degree.

R A 774. Investigational and Marketing Applications for Drugs and Biologics (3)
Prerequisite: Regulatory Affairs 602.
Development and informational content for investigational new drug applications (IND), investigational device exemptions (IDE), new drug applications (NDA), product license applications (PLA), and biologics license applications (BLA) for FDA review. Not a repeatable course. Maximum combined credit six units of Regulatory Affairs 773 and 774 applicable to a master's degree.

R A 775. Clinical Trials: Issues in Design, Conduct, and Evaluation (3)
Prerequisite: Regulatory Affairs 602.
Issues and requirements in design, conduct, and evaluation of clinical trials for new drugs, biologics, and medical devices. Introduction to biostatistics.

R A 776. Validation Aspects of Drugs, Biologics, and Device Product Development and Manufacturing, Including Computer Related Systems and Software (3)
Prerequisite: Regulatory Affairs 602.
Verification and validation of computer hardware, software, and peripherals for applications in pharmaceutical, biologic, and medical device industries.

R A 778. Quality Control and Quality Assurance: Pharmaceuticals, Biologics, and Medical Devices (3)
Prerequisite: Regulatory Affairs 602.
Review requirements, procedures, controls, and documentation for quality control and assurance in manufacture and commercial distribution of drugs, biologics, and medical devices.

R A 779. International Regulatory Affairs (3)
Prerequisite: Regulatory Affairs 602.
International medical device regulations pertaining to pharmaceuticals, biologics, and devices. Emphasis on European union and other appropriate areas of the world.

R A 781. Ethics for Healthcare Professionals (3)
Prerequisite: Regulatory Affairs 602.
Ethical issues confronting healthcare professionals. Moral positions concerning impact on laboratory animals, human subjects, patients, and consumers, both on a case-specific level and as applied to field in general. Develop capacities to generalize, translate, and apply principles and ideas to modern biomedical practice.

R A 783. Effective Communication for Healthcare Professionals (3)
Prerequisite: Regulatory Affairs 601.
Written, oral, and interpersonal communication strategies for the business environment with emphasis on regulatory affairs.

R A 787. Research (1-3) Cr/NC/RP
Prerequisite: Consent of staff; to be arranged with program director/graduate adviser and instructor.
Research in the area of regulatory sciences. Maximum credit six units applicable to a master's degree.

R A 798. Special Study (1-3) Cr/NC/RP
Prerequisite: Consent of staff; to be arranged with department chair and instructor.
Individual study. Maximum credit six units applicable to a master's degree.

R A 799A. Thesis or Project (3) Cr/NC/RP
Prerequisites: An officially appointed thesis committee and advancement to candidacy.
Preparation of thesis or project for the master's degree.

R A 799B. Thesis or Project Extension (0) Cr/NC
Prerequisite: Prior registration in Thesis 799A with an assigned grade of RP.
Registration required in any semester or term following assignment of RP in Course 799A in which the student expects to use the facilities and resources of the university; also students must be registered in the course when the completed thesis or project is granted final approval.