TOURO UNIVERSITY
CALIFORNIA

M.Sc. Program in Medical Health Sciences of the College of Pharmacy (MS-MHS-COP)

Program Overview for 2019-2020

Disclaimer: The following information may be subject to changes

Fall Semester 2019: 08/06/2019 to 12/20/2019
Spring Semester 2020: 01/06/2020 to 05/15/2020

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Program Summary:
Under the larger umbrella of Masters in Health Sciences at Touro University California (TUC), the M.Sc. Program in Medical Health Sciences of the College of Pharmacy (MS-MHS-COP) represents a 10-months program that consists of two semesters of didactic work and intensive research training totaling 40 credits. The course of study begins August and ends in May of the following calendar year. The 19- and 18-week didactic fall and spring semesters, respectively, correspond to those in the College of Pharmacy's concurrent PharmD Program. The Program Director will arrange and oversee a successful and rewarding research experience in collaboration with the Program Coordinator and participating Faculty Advisors.

This MS Program is designed to provide students with the knowledge and tools to be effective scientific or clinical investigators. Individual interaction with Faculty Advisors on current research topics is at the core of this exciting program. Classroom coursework includes laboratory techniques, biostatistics, scientific writing, integrated pharmaceutical sciences, critical assessment and presentation of the primary scientific literature and oral scientific presentations.

This MS Program is carefully integrated. Course content is designed to be pertinent to the degree. No transfer credit, credit for experiential learning, or advanced placement can therefore be granted.

Program Strengths:
The MS-MHS-COP Program went recently (2017-2018) through a combined institutional and external review process and the following strengths of the Program were noted:

Competitiveness:
a) Short duration (10 months)
b) Research intensive (28/40 credits)
c) Low tuition for degree (<$30,000)
d) High retention (98%) and graduation (98%) rates since inception of the MS Program in 2012
e) Competitive career advantages when applying to positions in the pharmaceutical industry or in doctoral programs (PharmD, PhD, or other)

Faculty Contributions to Program:
a) Committed faculty members provide one-on-one student mentoring
b) Commitment to research and scholarship
c) Faculty is engaged in constantly improving the curriculum
d) Use of multiple data sources in curriculum improvement

Program Contributions to COP:
a) Provides students with much sought after access to research
b) Helps in building out TUC/COP research base
c) Provides a pipeline for the COP PharmD program (61% of MS graduates)
d) Allows graduates to pursue a variety of careers

Other Strengths:
a) Students consistently express a high degree of satisfaction with the program overall and with the individual courses and instructors
b) Overall GPA of the last two classes was 2.80 or higher
c) Gender-balanced and diverse classes

Goals of the MS Program:
The goals of this 40-credit MS Program are:

- To promote/establish sound understanding of the biomedical sciences, critical analytical skills, effective communication skills, strong work ethics, and a high level of professionalism.
- To prepare/enhance students' qualifications and competencies in pursuing careers which require the above skills, including admission to doctoral programs or appointment as Research Assistant/Associate in the biotechnology/pharmaceutical industry sector.

Program Student Learning Outcomes (PSLOs):
Students who complete this MS Program in Medical Health Sciences with emphasis in Pharmacy Sciences at TUC-COP will be able to....

- Critically assess the scientific literature
- Conduct original biomedical and related research
- Design and implement biomedical research experiments to critically test hypotheses
- Present scientific data in poster and seminar formats
- Demonstrate strong verbal and written communication skills
- Behave in a professional and ethical manner

Enrollment Target:
Ten (10) students will be enrolled in the BMSR track each year and matched to a participating faculty advisor. Each of the enrolled students will work with one or two TUC-COP Faculty Advisors in a laboratory setting either on the TUC campus or at the Buck Institute for Research on Aging. For more information on the Buck Institute, click on the following URL: https://www.buckinstitute.org/

General Overview:
For the upcoming 2019-2020 schoolyear, the MS-MHS-COP program offers one track in Biomedical Sciences Research (BMSR). The BMSR track aims at recruiting a specific set of students as shown below:

Biomedical Sciences Research (BMSR) Track

- BA/BSc graduates seeking a career in the Biotech/Pharma industry or training in a doctoral program (PharmD, PhD, or other)
- 10-month research-intensive program:
  - 28 credits research training
  - 12 credits classroom coursework
- Minimum GPA: 2.50, 2.60 preferred
- Enrollment target: 10
- For more information, click here.

Course Credits:

The BMSR track will run for 19 and 18 weeks during the fall and spring semesters, respectively (*i.e.*, 37 weeks total) and have a total of 40 units of credits derived from successful completion of traditional classroom and laboratory courses.

Curriculum Overview:

Fall Semester (20 credits)

HSPC600 Biomedical Research Techniques (1-credit classroom course)
HSPC601 Biostatistics (2-credits classroom course)
HSPC602 Mentored Research-1 (14-credits laboratory course)
HSPC603 Scientific Writing-1 (2-credits classroom course)
HSPC604 Journal Club-1 (1-credit classroom course)

Spring Semester (20 credits)

HSPC606 Scientific Writing-2 (2-credits classroom course)
HSPC607 Scientific Presentation (2-credits classroom course)
HSPC608 Mentored Research-2 (14-credits laboratory course)
HSPC609 Journal Club-2 (1-credit classroom course)
HSPC610 Integrated Pharmaceutical Sciences (1-credit classroom course)

Approximately 70% (or 28 credits) of each student's time will be dedicated to working on their research project (HSPC602 and HSPC608), and 30% (or 12 credits) spent in a small-group classroom learning environment.

Fall Semester 20 credits						
	Monday	Tuesday	Wednesday	Thursday	Friday	
08:00 am - 09:00 am	Preparation Time	Preparation Time	Preparation Time	Preparation Time	Preparation Time	08:00 am - 09:00 am
09:00 am - 10:00 am	HSPC602 Mentored Research-1	HSPC602 Mentored Research-1	HSPC602 Mentored Research-1 (14 Cr)	HSPC602 Mentored Research-1	HSPC602 Mentored Research-1	09:00 am - 10:00 am
10:00 am - 11:00 am						10:00 am - 11:00 am
11:00 am - 12:00 pm						11:00 am - 12:00 pm
12:00 pm - 01:00 pm	Break	Break	Break	Break	Break	12:00 pm - 01:00 pm
01:00 pm - 02:00 pm		HSPC600 (1 Cr) Biomed Res Tech				01:00 pm - 02:00 pm
02:00 pm - 03:00 pm		HSPC603 (2 Cr) Scient. Writing-1				02:00 pm - 03:00 pm
03:00 pm - 04:00 pm		HSPC604 (1 Cr) Journal Club				03:00 pm - 04:00 pm
04:00 pm - 05:00 pm		Break				04:00 pm - 05:00 pm
05:00 pm - 06:30 pm		HSPC601 (2 Cr) Biostatistics				05:00 pm - 06:30 pm

Spring Semester 20 credits						
	Monday	Tuesday	Wednesday	Thursday	Friday	
08:00 am - 09:00 am	Preparation Time	Preparation Time	Preparation Time	Preparation Time	Preparation Time	08:00 am - 09:00 am
09:00 am - 10:00 am	HSPC608 Mentored Research-2	HSPC608 Mentored Research-2	HSPC608 Mentored Research-2 (14 Cr)	HSPC608 Mentored Research-2	HSPC608 Mentored Research-2	09:00 am - 10:00 am
10:00 am - 11:00 am						10:00 am - 11:00 am
11:00 am - 12:00 pm						11:00 am - 12:00 pm
12:00 pm - 01:00 pm	Break	Break	Break	Break	Break	12:00 pm - 01:00 pm
01:00 pm - 02:00 pm		HSPC607 (2 Cr) Scient. Present.				01:00 pm - 02:00 pm
02:00 pm - 03:00 pm		HSPC606 (2 Cr) Scient. Writing-2				02:00 pm - 03:00 pm
03:00 pm - 04:00 pm		HSPC609 (1 Cr) Journal Club				03:00 pm - 04:00 pm
04:00 pm - 05:00 pm		Break				04:00 pm - 05:00 pm
05:00 pm - 06:00 pm		HSPC610 (1 Cr) Integr Pharm Sci				05:00 pm - 06:00 pm

Admissions Requirements and Process

Information regarding admissions requirements and process, including a link to the application for admission, may be found by visiting http://admissions.tu.edu/msmhs-ps.

Requirements for Graduation:

1. Satisfactory completion of all required and elective courses, *i. e.*, a total of 40 units of credits. Satisfactory completion is a grade of at least a 2.0 (or 70%) in each course. There can be no outstanding Unsatisfactory or Incomplete grade.
2. Completion of all graded and non-graded coursework and assignments, including but not limited to:
    a. a final report on research results, written in the form of a Master's thesis and
    b. a final oral presentation (similar to a thesis defense)
3. Satisfactory demonstration of professional competencies
4. Recommendation by the MS-MHS-COP administration for graduation
5. Fulfillment of all legal and financial obligations to Touro University California

Accreditation:

The Master of Science in Medical Health Sciences of the College of Pharmacy (MS-MHS-COP) is offered by Touro University California, which is fully accredited by the Western Association of Schools and Colleges (http://www.wascsenior.org/).

Cost:

The tuition for obtaining a Master's degree in Medical Health Sciences at Touro University California is set a $28,800 for the school year 2019-2020. Tuition does not include application fees if required (see the on-line Application Form), but does cover all costs for online materials and laboratory supplies. Technical support is available, but students are expected to provide their own laptop.

As a fully accredited course, financial aid is available through Touro University California's Financial Aid Office (http://studentservices.tu.edu/financialaid/).

Technology Competence:

Students are required to possess a laptop computer that meets the requirements as specified by the College of Pharmacy (http://cop.tu.edu/studentresources/COP_technical.html).

Academic Calendar, 2019-2020:

The duration of the MS-MHS-COP program is typically of 10 months and runs from August to May of the following year.

The program runs in parallel with the College of Pharmacy curriculum, and therefore enjoys all of the breaks and holidays observed by the PharmD program. These include a Fall, Winter, and a Spring Break, as well as observance of the typical national and major Jewish holidays.

MS Workshops for 2019-2020:

- How to apply to Pharmacy School. Office of Admissions. October, 2019
- Mock Interviews with PharmD Faculty. November 2019
- Mock Interviews with PharmD Faculty. January 2020

Important Dates Near the End of the Spring Semester 2019

Wednesday, Apr 24	19th Annual TUC Research Day (presentation of a poster)
Thursday, May 23	Graduation of the MS Class of 2020

Program and course evaluations:

Mandatory student evaluations of Orientation & Matching Day are performed shortly after the start of classes in the fall. Mandatory student evaluations of the overall program, individual courses and advisors are performed towards the end of each semester (in December and May).

MS Graduates by Career Path:

Class of	Number of Grads	COP PharmD	Other PharmD	MD or DO	PhD	Other Doctorate	Biotech/ Pharma	Other/ Unknown
2013	10	7	2				1	
2014	11	5	1					5
2015	15	12	2			1 (DDS)		
2016	14	8	1				3	2
2017	9	3	3	1			1	1
2018	12	8					1	3

The majority of our students chooses and manages to matriculate into a PharmD Program. From 2012-2018, a total of 52/71 (73%) of graduates chose a career path in Pharmacy and enrolled in a PharmD Program. Of those, 43/52 (83%) chose to enroll in the TUC-COP PharmD Program.

Among the six graduates who chose a career path in biotechnology/pharmaceutical industry, three got jobs at BioMarin and two at Genentech.

For any further information, please do not hesitate to contact any of the persons listed on the first page of this document.