



Marshall B.  
KETCHUM UNIVERSITY



Marshall B. Ketchum University

# COURSE CATALOG

2018-19

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# CHAPTER I: INTRODUCTION

## PRESIDENT'S MESSAGE

Thank you for visiting Marshall B. Ketchum University. We have reimagined a new kind of health care university – one that is growing to meet the demand for highly educated health care professionals. At the same time, we have over a century of experience in health care education as the Southern California College of Optometry. Our rich history, experience and forward vision make us well positioned to bring the future of health care education to Orange County and beyond.

What we see moving forward is that health care in the United States will rely more and more on a team approach to patient care. For a health care university, the real question we must ask is, “Are we preparing students to work in that collaborative environment?”

So, in April, 2013, SCCO expanded into MBKU to create the university structure that enables us to add additional health care programs. We named the new university after Marshall B. Ketchum, MD, who founded SCCO in 1904. Dr. Ketchum was a physician, a pharmacist and a life-long advocate for health care education.

Our goal is to create an interprofessional health care campus that prepares students to approach patient care as a team. We added a College of Health Sciences to establish a PA program, which has opened doors in the medical community and increased opportunities for interprofessional education for all MBKU students. In 2014, we established a College of Pharmacy and welcomed the inaugural class to campus in 2016.

As MBKU evolves, you will see more caring, compassionate practitioners ready to embrace the new paradigm in health care. Our 114-year tradition of excellence in health care education will continue as we deliver to you A NEW KIND OF HEALTH CARE UNIVERSITY. The future is expecting us and it is expecting YOU!



Kevin L. Alexander, OD, PhD

*President*

## VISION, MISSION, CORE VALUES AND INSTITUTIONAL LEARNING OUTCOMES

### Vision

We seek to reimagine the future of health care education.

### Mission

The mission of Marshall B. Ketchum University is to educate caring, inspired health care professionals who are prepared to deliver collaborative, patient-centric health care in an interprofessional environment.

## Core Values

Marshall B. Ketchum University is guided by the values of: Accountability, Caring, Excellence, Innovation and Respect.

**Accountability:** We are committed to honesty, fairness and responsibility for our words and actions.

**Caring:** We strive to address the needs of our university community and others by nurturing a spirit of compassion.

**Excellence:** Consistent with our legacy, we are committed to achieving outcomes of the highest quality.

**Innovation:** We have the courage to dream and experiment with creative and unique ideas.

**Respect:** We value the unique talents and diversity of people, strive to work collaboratively, and honor the open exchange of ideas.

## Marshall B. Ketchum University Institutional Learning Outcomes [ILO(S)]

### Domain 1: Communication

MBKU graduates demonstrate competence in listening, reading, speaking, writing and interpersonal skills.

### Domain 2: Analytical reasoning and problem solving

MBKU graduates demonstrate competence in assimilation, evaluation and interpretation of evidence from multiple sources; and the application of that information to achieve optimal patient outcomes.

### Domain 3: Interprofessional health education

MBKU graduates demonstrate competence as members of the healthcare team to provide quality health care services in an interprofessional environment.

### Domain 4: Health information Literacy and Lifelong learning

MBKU graduates demonstrate ongoing competence to identify and analyze evidence-based health information in formulating successful outcomes for patients.

### Domain 5: Professionalism

MBKU graduates demonstrate their professional competence with published standards of practice and codes of conduct as health care providers

## UNIVERSITY ACCREDITATIONS

MBKU is regionally accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC), 985 Atlantic Ave., Suite 100, Alameda, CA 94501; 510.748.9001; e-mail: [wascsr@wascsenior.org](mailto:wascsr@wascsenior.org).

The Doctor of Optometry program at SCCO is accredited professionally and nationally by the Accreditation Council on Optometric Education of the American Optometric Association, 243 N. Lindbergh Blvd., St. Louis, MO 63141-7881.

The ARC-PA has granted Accreditation - Provisional status to the School of Physician Assistant Studies sponsored by Marshall B. Ketchum University. Accreditation-Provisional is an accreditation status granted when the plans and resource allocation, if fully implemented as planned, of a proposed program that has not yet enrolled students appear to demonstrate the program's ability to meet the ARC-PA Standards or when a program holding Accreditation-Provisional status appears to demonstrate continued progress in complying with the Standards as it prepares for the graduation of the first class (cohort) of students.

Accreditation-Provisional does not ensure any subsequent accreditation status. It is limited to no more than five years from matriculation of the first class.

Marshall B. Ketchum University College of Pharmacy's Doctor of Pharmacy program has been granted Precandidate status by the Accreditation Council for Pharmacy Education, 135 South LaSalle Street, Suite 4100, Chicago, IL 60503, 312/644-3575; FAX 312/664-4652, website [www.acpe-accredit.org](http://www.acpe-accredit.org). Granting of Precandidate status brings no rights or privileges of accreditation as associated with either candidate status or accredited status. Precandidate status indicates only that planning has taken into account ACPE standards and guidelines and suggests reasonable assurance of moving to the next step, that of Candidate status. Since Precandidate status does not create any rights of accreditation under the ACPE standards, it is the opinion of ACPE that graduates of programs of Colleges or Schools of Pharmacy that bear Precandidate status do not meet the educational requirements for licensure.

## HISTORY

MBKU began as the Los Angeles School of Ophthalmology and Optometry, and was chartered by the State of California in 1904. It is the third oldest of the schools and colleges of optometry in the U.S. and Puerto Rico. In 1911, the name of the school was changed to the Los Angeles Medical School of Ophthalmology and Optometry and the school became incorporated. The name of the school was later changed in 1948 to the Los Angeles College of Optometry. In 1973, when it moved to a newly built campus in the City of Fullerton in Orange County, California, some 30 miles from its former location in downtown Los Angeles, the institution's name changed to the Southern California College of Optometry.

In April, 2013, the name Marshall B. Ketchum University was approved by the college's Board of Trustees. Named after the founder of the institution in 1904, the change to a university structure addresses the growing demand for highly skilled health care professionals. MBKU provides a diversity of health care training opportunities in an environment fully focused on medical professionalism, combining advanced clinical training with innovative teaching methods. Currently, MBKU degree programs are offered by the Southern California College of Optometry, the College of Health Sciences and the College of Pharmacy.

MBKU derives its income from student tuition and fees, clinical service fees, research grants, legacies, gifts, land ownership and endowments. The MBKU Board of Trustees is non-salaried and no financial benefits of the University accrue to any member of the controlling body. As an independent, private, nonprofit, accredited educational institution, important additional revenues are received in the form of voluntary gifts from friends of the university, parents, alumni, trustees, corporations, foundations and others.

## PROGRAMS

MBKU offers the following degrees and programs:

- Doctor of Optometry (OD)
- Doctor of Pharmacy (PharmD)
- Master of Medical Science in PA Studies (MMS)
- Master of Science in Vision Science (MS)
- Honorary Degrees
- Optometric Residency Programs
- Continuing Education

## Continuing Education

The MBKU Department of Continuing Education promotes lifelong learning through presentation of current and clinically relevant broad-based continuing education to health professionals primarily directed at optometrists, PAs and pharmacists. MBKU continuing education programs encompass a full scope of health-related evidence based courses designed to enhance patient care. Programs are delivered in approved formats that include live, hands on and online education courses.

## **Honorary Degrees**

Honorary degrees may be conferred by the MBKU Board of Trustees upon those who merit recognition for distinct contributions or outstanding service to society, the university and/or the profession. The honorary degrees granted are Doctor of Ocular Science, Doctor of Humane Letters and Doctor of Laws. Honorary degrees shall not be conferred in absentia, nor shall an honorary degree be awarded as an earned degree.

## **COMPLIANCE STATEMENT**

MBKU makes every effort to comply responsibly, and in a timely manner, with every state and federal government regulation involving the welfare of its students. Following are items of importance that address MBKU's ongoing efforts.

### **Use of the Catalog**

The University Catalog is an annually published reference piece for prospective and matriculated students. The Catalog contains all programs offered by MBKU. Matriculated students will also be referred to the University Student Handbook and individual program student handbook.

MBKU assumes no responsibility for errors in, misrepresentation of, or misinterpretation of these policies. Please read the information carefully and be sure to contact Admissions, if you are a prospective student, or University Student Affairs, if you are a current student, for clarification or more information.

Every effort has been made to verify the accuracy of information contained in our Catalog, however, Marshall B. Ketchum University reserves the right to change without notice degree requirements, curriculum, courses, teaching personnel, rules, regulations, tuition, fees, and any published information herein.

The information in the Catalog is intended to serve only as an announcement. The University Catalog should not be regarded as a contract.

### **Non-Discrimination Policy**

Marshall B. Ketchum University is committed to providing an environment in which all individuals are treated with respect and professionalism. It is University policy to prevent the unlawful discrimination against students, applicants for admission, employees, applicants for employment, or patients requesting treatment on the basis of race, color, national origin, sex, disability, or age. An otherwise qualified individual shall not be excluded from admission, employment, or participation in educational programs and activities solely by reason of his/her physical handicap, medical condition, or mental or physical disability. The University's non-discrimination policy is consistent with federal and state law. Inquiries regarding the University's equal opportunity policies should be directed to the Vice President for Student Affairs.

For further information on notice of non-discrimination, contact The Office of Civil Rights by calling 1-800-421-3481.

### **Prohibited Harassment and Retaliation Policy**

The University is committed to being a community in which individuals, including students, faculty, staff and administration, are free of prohibited harassment. The University will not tolerate any type of harassment against individuals on the basis of race, color, national origin, ancestry, sex (including pregnancy, childbirth, related medical conditions, and breastfeeding), gender, gender identity, gender expression, sexual orientation, age, religion (including religious dress and grooming practices), physical or mental disability, medical condition, marital status, military or veteran status, genetic information, citizenship, primary language, or immigration status, or any other basis protected by applicable federal, state, or local law ("a protected category"). The University also prohibits harassment based on the perception that an individual has the characteristics of someone in a protected category, or is associated with a person who has or is perceived as having the characteristics of someone in a protected category. Violence, or intimidation by threat of violence, because of political affiliation, position in a labor dispute, or on account of a protected category is prohibited as well. This policy applies at all University locations, University-sponsored social or other events, as well as activities at which individuals represent the University.

Harassment includes expressly or impliedly conditioning a benefit (or the absence of a detriment) on sexual favors, or the creation of a hostile university environment through visual, verbal, or physical conduct. Prohibited conduct includes any of the following when related to a protected category: making slurs, innuendos, or potentially offensive comments or jokes; the display of potentially offensive cartoons, posters, or other materials; distributing potentially offensive pictures or words in written, pictorial, or electronic form; touching, or other unwanted attention; threats, intimidation, or other abusive behavior.

Harassment is prohibited if it is related to a protected category, is unwelcome, and is severe or pervasive enough to create an intimidating, hostile, or offensive environment that alters conditions at the University. The University does not allow anyone to harass University students, employees, applicants, independent contractors, or volunteers on the basis of a protected category.

Additionally, the law prohibits unlawful harassment (and discrimination and retaliation) (e.g., Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, Title III of the Americans with Disabilities Act, Unruh Civil Rights Act, Ralph Civil Rights Act). Harassment can be a form of unlawful discrimination. To report prohibited harassment and/or unlawful discrimination, please contact the MBKU Title IX Coordinator ([TitleIX@ketchum.edu](mailto:TitleIX@ketchum.edu) or 714.449.7423) or use the "Report a Concern" form found on the Community Tab of [My.Ketchum.Edu](http://My.Ketchum.Edu).

## **Student Right-to-Know and Campus Security Act**

MBKU continuously strives to provide a safe and secure environment for classroom, work, study and after-hours activities at all university-owned facilities. In accordance with Public Law 101-524, MBKU maintains and provides a complete record of all crimes committed on University and Security-owned property. A copy of the report may be obtained from the Vice President for Student Affairs or the Director of Safety and Security.

## **Privacy of Records**

MBKU complies fully with the Family Educational Rights and Privacy Act of 1974, which protects the privacy of students' education records, establishes the right of students to inspect and review their education records and provides guidelines for the correction of inaccurate or misleading data through informal hearings. Students also have the right to file complaints with the U.S. Department of Education, Washington, D.C. 20202, concerning alleged failure by the university to comply with the act Education Code, Section 94312 (f). Any questions or problems concerning this institution which have not been satisfactorily answered or resolved by the institution should be directed to the Superintendent of Public Instruction, State Department of Education, Sacramento, CA 94244-2720.

## **Complaint Disclosure Notice**

The MBKU complaint process is available in the MBKU Student Handbook. Students are encouraged to first utilize the MBKU complaint process but we are required by the Bureau for Private Postsecondary Education to inform you of the availability of the state complaint process.

An individual may contact the Bureau for Private postsecondary Education for review of a complaint. The bureau may be contacted at 2535 Capitol Oaks Drive, Suite 400, Sacramento, CA 95833, <http://www.bppe.ca.gov>, 916.431.6924 or FAX 916.263.1897.

# CHAPTER II: UNIVERSITY POLICIES AND PROCEDURES

## ACADEMIC POLICIES

### Attendance

Marshall B. Ketchum University expects regular attendance at all lecture, laboratory and clinic sessions to which the student is assigned. Each program determines the specific attendance policy and procedures (see program handbook). The record of attendance is the responsibility of each individual instructor. Permission to be absent must be obtained from the dean/director of the program or the program designee. Instructors are not obligated to provide special consideration in the case of unexcused absences. Repeated unexcused absences may result in a student being placed on professional probation.

The academic credits at MBKU are described in terms of quarter units. One unit of credit represents one hour per week in the classroom during a 10-week quarter, two hours per week devoted to laboratory, or three hours per week of clinical work. Full time is defined as 12 units per quarter for students enrolled for three quarters per academic year and 9 units per quarter for students enrolled for four quarters per year.

Examinations are held in each course and are required of all students taking the course. All students must take all examinations, including final examinations, at the assigned time, unless prior arrangements have been approved by the instructor of record. Each program determines the procedures for reporting if a student must miss an exam because of an emergency (see program handbook). All missed exams must be made up as specified by the program. Course grades are assigned by the instructor of record.

### Grading System

The following grades are used by the University Registrar's Office. Refer to the program handbook for further information on the use of a specific grading system. In addition, information regarding graduation requirements can be found in each program handbook.

Grade	Grading Points	Symbols	
A	4.0	E	Incomplete
A-	3.7	FC/FD	Remediated Failure
B+	3.3	W	Withdraw
B	3.0	P	Pass
B-	2.7	AS	Advanced Standing
C+	2.3	AUD	Courses Audited without Credit
C	2.0		
D	1.0		
F (Failure)	0.0		
P	0.0		
FC	2.0		
FD	1.0		

A student's grade point average is determined by dividing the total number of grade points earned by the total number of units attempted. No grade points are assigned for courses that were incomplete or for courses that have been audited by the student.



## Definitions of other grades used:

An incomplete grade indicates that assignments have not yet been completed. It does not refer to the adequacy of the performance. An incomplete grade for failure to complete assignments must be removed at a time designated by the instructor of record; but, no later than three weeks following the completion of the quarter or it will automatically be changed to an F, or failure. A student receiving an E or incomplete grade in a clinical course may have the completion of the work deferred for a period of time longer than three weeks subject to the written approval of the instructor of record.

- Withdrawal indicates that the student withdrew from the course or the program.
- Pass indicates credit given for satisfactory completion of a pass-fail course.
- Audit indicates that a student was granted permission to sit in on lectures in a class for no credit. Students may not audit laboratories or clinical assignments.
- Advanced standing indicates credit given for previous equivalent work. Forms to waive a course are available from University Student Affairs.

Students receiving an F grade must satisfactorily complete an equivalent course or a remediation program. Successful completion of a remediation program will result in a grade change of Pass, FC, or FD, depending on the program (see program handbook). A fee to remediate deficiencies and for make-up examinations may be charged. Subject to the student's satisfactory completion of an approved equivalent course, the earned grade will be transcribed. The grade of F remains on the student's record; both units and grades are computed in the grade point average.

Official Change of Grade Request Forms are available from University Student Affairs and must be filed by the faculty.

Rules for academic probations and dismissals vary according to the academic program and may be found in the program student handbooks. A student on probation/alert may not participate in work-study nor hold office in a class, student association, fraternal, or any other student organization. In addition, students wishing to participate in off-campus meetings during the academic year must receive academic approval from the dean/director and may not be on academic probation. Students who are not making satisfactory progress will not be eligible to receive loan monies through programs of the federal government. Students are considered to be making satisfactory progress if they have completed each year's coursework within a maximum of two academic years.

## Suspension

A student may be suspended from participating in MBKU's academic and clinical programs for a period of time up to one year if found guilty of failure to comply with the published "Student Code of Conduct."

## **Leave of Absence**

Any student may apply to take a Leave of Absence (LOA) from the program for a specific time period providing that it does not involve more than 180 days, including holidays and educational breaks, within a 12-month time period. A LOA must be requested in writing to the dean/director of the program no later than one month prior to the start of the LOA in the case of a planned event and must include the reason for the LOA as well as the dates involved. In the case of unforeseen circumstances, for example, an accident or emergency medical condition, the student must request the LOA in writing as soon as they are physically able to do so. Students may not see patients while on a LOA. In addition, students may not receive financial aid during the time of the LOA. Students who meet the criteria for the LOA are not considered to have withdrawn from the program for loan repayment purposes and their student loan repayment/grace status may not be impacted.

Any student who is absent for up to two weeks without submitting a written request in accordance with the regulations for a LOA, will be considered to have withdrawn from the program. As an unexcused or unapproved withdrawal, the student may forfeit any rights to return to the program pending an administrative decision.

Students who are dismissed for academic reasons and given the right to return will be eligible for financial aid when they return to the program, provided they are enrolled at least half-time. A student in this situation does not meet the requirements for a LOA, but instead will be considered as eligible for a Withdrawal with Intent to Return (WIR). Students, who are considered to be WIR, are no longer enrolled during the time they are away from the program. Their student loans will enter into repayment/grace status effective with the date they left the program. The student must request the WIR in writing to the dean/director of the program and if approved, the student will be permitted to return during the following academic year. During this time period the student will not be considered to be enrolled and their student loans will enter into repayment/grace status effective with the date they left the program. Students who are on academic probation at the time they elect to take a WIR may have their conditions for re-admittance reviewed by the program's academic standards committee prior to readmission.

## **FINANCIAL POLICIES**

### **Payment Procedures**

Full tuition and fees are due and payable on the start date of each quarter. A ten day grace period follows. Interest will be charged on outstanding balances. A student may not proceed from one academic year to the next without having fully paid the previous year's tuition and fees. Any exceptions must have prior approval of the administration.

### **Tuition Refund Policy**

A withdrawal is considered official when written notification has been received by the Vice President for Student Affairs stating the student's intention to withdraw from the university. All refunds are subject to review by the Vice President for Student Affairs. For official withdrawals, tuition will be prorated at following intervals: 100% before the first day of the quarter; 1st week – 90%; 2nd to 3rd week – 75%; 4th to 6th week – 50%; 7th to 8th week – 25%; and After week 8 – 0%.

## **Return of Title IV Funds**

The 1998 Reauthorization of the Higher Education Act stipulates that students who withdraw prior to completing 60% of the quarter for which they received federal student aid may be required to return some of the aid they were awarded. MBKU will restore to the appropriate federal fund source a proportional share of institutional charges that the borrower has paid. If there is an amount still owed to the government after MBKU returns funds, the student will be responsible to return a portion of unearned funds. If the student is entitled to a refund from the University, any refund will be first applied to his or her obligation to return unearned aid before he or she receives money back. Thus, portions of institutional refunds may be applied on the student's behalf to his or her outstanding Direct Loan and not actually refunded directly to the student. Non-federal aid is not included in the calculation.

## **Tuition Prepayment Policy**

Any student requesting to prepay his or her tuition for one or more years beyond the current year's tuition may prepay his or her future tuition at the current year's tuition rate provided the full payment for the current year and for each subsequent year(s) is received by MBKU Student Accounts Services no later than thirty (30) days following the first day of the current year Fall Quarter. Future annual tuition increases will not be charged to those students who have elected to fully prepay their future tuition. Any student who is dismissed or officially withdraws from the program, as per the requirements stated in the MBKU catalog, will have his or her prepaid tuition returned, except for the current year's tuition, which will be refunded as per the policy stated in the current MBKU catalog.

# **CHAPTER III: PROGRAMS**

## **SOUTHERN CALIFORNIA COLLEGE OF OPTOMETRY**

### **DOCTOR OF OPTOMETRY**

#### **Mission**

To educate today's minds to provide tomorrow's eye, vision and health care.

#### **PROGRAM OVERVIEW**

The Doctor of Optometry is a 4 year academic program that prepares graduates to deliver contemporary eye, vision and health care as an integral member of the primary care health team. During the first year, students are exposed to the basic sciences and research techniques. Included are courses in geometrical and physical optics, biomedical sciences, visual sciences and clinical techniques. First-year students also receive their first introduction to patient care at Ketchum Health, the university's eye and health center.

The second year emphasizes clinical techniques and advanced studies in visual science. Students begin seeing their own patients at Ketchum Health in the second quarter of the second year.

Third-year students have patient care assignments at Ketchum Health under the supervision of clinical faculty and take courses in contact lenses, vision therapy, diseases of the eye, ocular pharmacology, clinical optometry and public health.

The final year is primarily spent serving patients in the various facilities of the outreach clinical program. Some assignment in the specialty services at Ketchum Health is also included.

The mission of the Southern California College of Optometry's outreach clinical programs is to deliver the highest quality patient care and service and to educate clinicians in the art and science of optometry in diverse patient care delivery environments.

The degree of Doctor of Optometry will be conferred on students who are officially admitted to, and who satisfactorily complete, the four-year professional curriculum in optometry. Satisfactory completion of the SCCO program will academically qualify the graduate to apply for licensure in each of the 50 states.

#### **ADMISSIONS**

The Southern California College of Optometry is committed to accepting a diverse group of qualified individuals from a variety of backgrounds and experiences in accordance with MBKU's nondiscrimination policy.

#### **Criteria**

##### **Functional Guidelines for Didactic and Clinical Optometric Education**

The functional guidelines in optometric education require that the candidate/student possess appropriate abilities in the following areas: 1) observation; 2) communication; 3) sensory and motor coordination; 4) intellectual –conceptual, integrative and quantitative abilities; and 5) behavioral and social attributes. Each of these areas is described below.

## Observation Abilities

The student must be able to acquire a defined level of required knowledge as presented through lectures, laboratories, demonstrations, patient interaction and self-study. Acquiring this body of information necessitates the functional use of visual, auditory and somatic sensation enhanced by the functional use of other sensory modalities. Examples of these observational skills in which accurate information needs to be extracted in an efficient manner include:

Visual Abilities (as they relate to such things as visual acuity, color vision and binocularity):

- Visualizing and reading information from papers, films, slides, video and computer displays
- Observing optical, anatomic, physiologic and pharmacologic demonstrations and experiments
- Discriminating microscopic images of tissue and microorganisms
- Observing a patient and noting non-verbal signs
- Discriminating numbers, images and patterns associated with diagnostic tests and instruments
- Visualizing specific ocular tissues in order to discern three-dimensional relationships, depth and color changes

Auditory Abilities:

- Understanding verbal presentations in lecture, laboratory and patient settings
- Recognizing and interpreting various sounds associated with laboratory experiments as well as diagnostic and therapeutic procedures

Tactile Abilities:

- Palpating the eye and related areas to determine the integrity of the underlying structures
- Palpating and feeling certain cardiovascular pulses

## Communication Abilities

The student must be able to communicate effectively, efficiently and sensitively with patients and their families, peers, staff, instructors and other members of the health care team. The student must be able to demonstrate established communication skills using traditional and alternative means. Examples of required communications skills include:

- Relating effectively and sensitively to patients, conveying compassion and empathy
- Perceiving verbal and non-verbal communication such as sadness, worry, agitation and lack of comprehension from patients
- Eliciting information from patients and observing changes in mood and activity
- Communicating quickly, effectively and efficiently in oral and written English with patients and other members of the health care team
- Reading and legibly recording observations, test results and management plans accurately
- Completing assignments, patient records and correspondence accurately and in a timely manner

## Sensory And Motor Coordination Abilities

Students must possess the sensory and motor skills necessary to perform an eye examination, including emergency care. In general, this requires sufficient exteroception sense (touch, pain, temperature), proprioceptive sense (position, pressure, movement, stereognosis and vibratory) and fine motor function (significant coordination and manual dexterity using arms, wrists, hands and fingers).

Examples of skill required include but are not limited to:

- Instillation of ocular pharmaceutical agents
- Insertion, removal and manipulation of contact lenses
- Assessment of blood pressure and pulse
- Removal of foreign objects from the cornea
- Simultaneous manipulation of lenses, instruments and therapeutic agents and devices
- Reasonable facility of movement
- Injections into the eye, lids or limbs

## **Intellectual-Conceptual, Integrative And Quantitative Abilities**

Problem solving, a most critical skill, is essential for optometric students and must be performed quickly, especially in emergency situations. In order to be an effective problem solver, the student must be able to accurately and efficiently utilize such abilities as measurement, calculation, reasoning, analysis, judgment, investigation, memory, numerical recognition and synthesis. Examples of these abilities include being able to:

- Determine appropriate questions to be asked and clinical tests to be performed
- Identify and analyze significant findings from history, examination and other test data
- Demonstrate good judgment and provide a reasonable assessment, diagnosis and management of patients
- Retain, recall and obtain information in an efficient manner
- Identify and communicate the limits of one's knowledge and skill

## **Behavioral And Social Attributes**

The student must possess the necessary behavioral and social attributes for the study and practice of optometry. Examples of such attributes include:

- Satisfactory emotional health required for full utilization of one's intellectual ability
- High ethical standards and integrity
- An empathy with patients and concern for their welfare
- Commitment to the optometric profession and its standards
- Effective interpersonal relationships with patients, peers and instructors
- Professional demeanor
- Effective functioning under varying degrees of stress and workload
- Adaptability to changing environments and uncertainties
- Positive acceptance of suggestions and constructive criticism

It is our experience that a number of individuals with disabilities, as defined by Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, are qualified to study and work as health care professionals and scientists with the use of reasonable accommodations. To be qualified for health sciences programs at MBKU those individuals must be able to meet both our academic standards and the technical standards, with or without reasonable accommodations.

For further information regarding services and resources for students with disabilities and/or to request accommodations, please contact the Office for Student Affairs.

## Prerequisites

Academic requirements for admission to SCCO are based on standards set by the California State Board of Optometry, the accrediting bodies and the judgment of the Admissions Policy Committee.

To be considered as a candidate for admission to the professional OD program, a four-year baccalaureate degree is recommended. However, applicants who complete a minimum of 90 semester or 135 quarter units of undergraduate study will qualify for admission. To be eligible to apply, the applicant must be on track to complete the required units through the summer term that precedes fall matriculation.

The minimum prerequisite courses must be completed at a regionally accredited college or university in the U.S. or Canada. Applicants who are not U.S. citizens or permanent U.S. residents must submit a certified bank statement showing their ability to pay for the four years of education prior to an I-20 form being issued for immigration purposes.

Applicants must demonstrate facility in writing and speaking the English language. The following courses must be completed at a regionally accredited institution, in the U.S. or Canada, with a grade of “C-” or better, prior to enrollment and are the minimum requirements for all applicants:

6 semester units or 9 quarter units:

- General Biology or Zoology (no lab required)

8 semester units or 12 quarter units in each of the following:

- General Physics (one year sequence, including labs)
- General Chemistry (one year sequence, including labs)

3 semester units or 4 quarter units in each of the following:

- Calculus (analytic geometry/calculus also acceptable)
- General Microbiology or Bacteriology (including lab)
- Human Anatomy (no lab required)
- Human Physiology (no lab required)
- Organic Chemistry (no lab required)
- Biochemistry (no lab required)
- Psychology
- Statistics

6 semester units or 8 quarter units:

- English Composition or Literature (writing intensive courses are acceptable)

Placement (AP) courses for the prerequisites will be accepted as long as the appropriate number of credit hours was received. These courses must appear on your official college transcript or in a letter from the registrar.

## Procedures

The number of applicants for admissions to SCCO regularly exceeds the number of available spaces. SCCO, as a regional and national resource, receives applications from nearly every state in the nation.

All first time applicants, re-applicants and those who have been previously enrolled in another optometry program must apply through the centralized service OptomCAS at [www.optomcas.org](http://www.optomcas.org). Applicants must follow the instructions on how to complete the application, submit transcripts and submit letters of recommendation. In addition, SCCO's supplemental application is located on the OptomCAS site and may be completed after selecting SCCO as a program to receive the application. The SCCO supplemental application fee is \$75 and must be paid directly to SCCO through the MBKU portal. Applicants will receive an automatic notification of how to pay the supplemental application fee once the application is received from OptomCAS.

The official SCCO application period is July 1 (the first day of the OptomCAS cycle) through April 1. Applicants must submit both application and college transcripts to OptomCAS by April 1.

Optometry Admission Test results will only be released to the individual schools and colleges that an applicant selects. Applicants need to designate SCCO as a recipient of test scores at the time the exam is taken to avoid delays. The address for the OAT program is: Optometry Admissions Testing Program, 211 E. Chicago Avenue, Chicago, IL 60611 and website is <http://www.ada.org/en/oat/>. The last OAT test date that will be accepted is April 1.

Accepted applicants who passed the criminal background check and have been notified of their acceptance are required to submit a non-refundable matriculation fee of \$750 within two weeks of their acceptance. By May 15, a second non-refundable \$750 deposit is required to secure their seat. The full \$1500 deposit will be credited to the Fall Quarter tuition upon their enrollment.

Candidates declining an offer of admission will not be deferred until the subsequent year and they must reapply through the normal OptomCAS process.

Accepted candidates who have not completed all course prerequisites at the time of application must do so before beginning studies at SCCO.

Send a request for more information on the application and interview process to: [ODadmissions@ketchum.edu](mailto:ODadmissions@ketchum.edu).

## Process

Once applications are received, it is SCCO's responsibility to select those applicants who are best qualified to make a contribution to the public and profession and who will benefit most from the optometric education program. The decision for admission is based on the applicant's ability, scholarship, character and motivation.

Approximately four weeks after the completed application has been submitted to OptomCAS, SCCO will begin the process of evaluation. Though not a mandatory requirement, letters of recommendation will be available to SCCO through OptomCAS. OAT scores will be downloaded when they are available, usually within two weeks after the exam.

The admissions procedure begins with a screening of each applicant's scholastic qualifications including the college record and the OAT scores. The goal is to select students who are academically capable of completing the Doctor of Optometry program.

Next, the applicant's personal qualifications are reviewed, since the study and practice of optometry requires great responsibility, maturity, ethics, devotion, intellectual curiosity and social commitment. Letters of recommendation, essays and extracurricular activities are evaluated.



Candidates will be invited to campus for interviews dependent upon their academic and professional potential credentials. Interviews will begin in the fall and will be completed early in the spring. The interview enables SCCO and the applicant to learn more about each other. Additionally, the interview process endeavors to appraise such personal qualities as responsiveness, warmth, social situation adjustment, the communication of clear and concise ideas, maturity and career motivation. Should an applicant successfully interview, a provisional acceptance is offered pending successful completion of a routine criminal background check.

## Combined Program

A combined Doctor of Optometry and Master of Science in Vision Science program is also available. Students admitted into the combined program are chosen from those accepted into the regular four-year Doctor of Optometry program. Students may apply for admission into the two programs concurrently or OD students may apply as late as the end of Winter of their first professional year.

## Transfer Applications

The Southern California College of Optometry does not accept transfer students or offer advanced standing under any circumstances. All applicants to our program must apply through OptomCAS and complete the entire four-year program.

## FINANCIAL INFORMATION

### Tuition

#### 2018–19 Tuition, Doctor of Optometry program

	Summer Quarter	Fall Quarter	Winter Quarter	Spring Quarter	Total
1st/2nd year tuition	-0-	\$14,295	\$14,295	\$14,295	\$42,885
Matriculation credit (1st-yr.)	-0-	-1,500	-0-	-0-	-1,500
Net tuition: 1st-yr.	-0-	\$12,795	\$14,295	\$14,295	\$41,385
Net tuition: 2nd-yr.	-0-	\$14,295	\$14,295	\$14,295	\$42,885
Net tuition: 3rd/4th-yr.	\$10,722	\$10,721	\$10,721	\$10,721	\$42,885

#### Tuition for returning students enrolled less than full time

Tuition (less than full time) per unit . . . . .	\$762
Audit per unit . . . . .	\$100

## Fees

Mandatory Equipment and Materials fee . . . . .	\$830/quarter for 10 quarters (first 3 years of program)
Annual Student Association fee . . . . .	\$105
Class Account fee . . . . .	\$.45
Graduation fee (only charged in the 4th year) . . . . .	\$150
Parking fee per quarter (optional) . . . . .	\$.60
Evaluation of transcripts in special cases (advanced standing OD program) . . . . .	\$350

While the occasion has not previously presented itself, the MBKU Board of Trustees does reserve the right to change the tuition and fees or to establish additional fees for special features or services if deemed necessary.

## COURSES

### **BVSS11: Applied Biomedical Science. (3 units)**

Three lecture hours per week. This course integrates a review and clinical applications of Biochemistry, Genetics, Immunology and Microbiology. The biochemistry portion involves a review of the structure and function of the biological macromolecules (proteins, lipids, polysaccharides and nucleic acids), intermediary metabolism and regulation. Also discussed are energy generation, signal transduction and an introduction to molecular biology. In addition, reference is made to unique aspects of biochemistry as it relates to normal and abnormal vision function. The genetic component of this course introduces the fundamental concepts of molecular genetics through an understanding of DNA, RNA, mRNA and tRNA. The genetic flow of information is presented through a review of basic knowledge of transcription and translation. Mendelian inheritance will also be covered. Immunology content begins with basic definitions and a presentation of the types of immunity in the human. The cells involved in these types of immunity are discussed in detail. Subsequent topics will include; the classification of antigens, consequences of an antigen-antibody reaction and a discussion of the types of immunoglobulins. Allergies are presented with emphasis on those allergies important to optometrists. The response of the normal human immune system to infection and the collapse of the immune system during the development of AIDS is included. This course also includes a concise review of clinically important aspects of microbiology. Basic and clinical aspects of bacteriology, virology, mycology and parasitology are covered. Infections of the eye are discussed in relation to techniques for laboratory isolation, culturing and identification of the infectious agents.

### **BVSS12: Ocular Anatomy. (5 units)**

Four lecture hours and two laboratory hours per week. A detailed study of the human visual apparatus and related structures is presented. Topics are approached from gross anatomical, histological and embryological perspectives. The laboratory is devoted to the demonstration of basic ocular anatomy concepts. Laboratories include dissection of the mammalian eye and examination of the human eye.

### **BVSS13: Neurophysiology. (4.5 units)**

Three lecture hours and three laboratory hours per week. This course presents the study of the central nervous system, including cellular neurophysiology, organization of sensory pathways, voluntary control of movement and the physiology of central visual pathways. Laboratory instruction includes the gross and microscopic anatomy of the nervous system, the study of the major sensory and motor pathways of the brain, as well as discussion of the clinical correlations of neuro-anatomical structure.

### **BVSS20: Clinical Medicine I. (3.75 units)**

Three lecture hours and one and one-half laboratory hours per week. This course provides the fundamental principles of general pathology. Topics of discussion include cell injury and death, cellular repair, inflammation, infection, blood and circulatory disorders, neoplasia, genetics and environmental diseases. The patho-physiology of each topic is emphasized. The laboratory portion concentrates on clinical procedures, diagnostic evaluation and treatment and management, and enables application of those theories learned in lecture. The laboratory topics presented include glucometry, blood pressure and carotid artery assessment, cranial nerve evaluation, headache history and systemic emergencies.

### **BVSS40: Optics I. (5 units)**

Four lecture hours and two laboratory hours per week. This course is an introduction to the geometrical optics of prisms, mirrors and lenses. Emphasis is placed on the characteristics of optical images formed by these basic elements and their combinations. Applications of the subject matter to vision and clinical optometry are discussed.

### **BVSS41: Optics II. (5 units)**

Four lecture hours and two laboratory hours per week. This course presents advanced topics in geometrical optics and an introduction to physical optics. Of primary interest are optical instruments and their properties, chromatic and monochromatic aberrations, interference, diffraction and polarization. Applications to vision science and clinical optometry are discussed.

### **BVSS42: Ophthalmic Optics I. (3 units)**

Two lecture hours and two laboratory hours per week. This introductory course in ophthalmic prescription measurement includes the use of instruments to design and measure spherical and cylindrical lens powers, as well as the determination of surface powers and base curves. The course emphasizes the basic calculation principles and use of ophthalmic lens measuring devices.

**BVS550: Eye Movements. (4.25 units)**

Three and one-half lecture hours and one and one-half laboratory hours per week. Eye movements are described with an emphasis on their functional characteristics. The anatomy and physiology of the extra-ocular muscles and the various neural pathways serving eye movements are presented within a framework of the functions they serve. Emphasis is placed on the basic oculomotor kinematics that will be necessary for clinical interpretation of eye movement disorders. Classes of eye movements that are considered in detail include vestibulo-ocular and optokinetic eye movements, pursuits, saccades, vergence, fixational eye movements and reading eye movements.

**BVS551: Visual Optics. (4 units)**

Three and one-half lecture hours and one laboratory hour per week. The eye is studied as the physiological optical element of the visual system. The optical components of the eye are discussed in terms of their geometrical, physical, physiological, psychophysical and optical properties. The eye is considered as an image-forming mechanism, where each component contributes to the nature and quality of the retinal image. The relationship between optics and visual performance is discussed, including the effects of ametropias and oculomotor systems on vision.

**BVS552: Visual Psychophysics. (4.25 units)**

Three and one-half lecture hours and one and one-half laboratory hours per week. This course is concerned with the study of visual stimuli and the response they evoke in the human organism. Included are the principles of photometry and radiometry as well as topics related to the visual response to light stimuli such as intensity discrimination, light and dark adaptation, visual acuity and the psychophysical methods used to investigate these aspects of the human visual system.

**BVS610: Ocular Physiology. (3.5 units)**

Three lecture hours and one laboratory hour per week. This course presents a systematic study of the physiology of the eye. Lecture topics include function, physiology and biochemistry of the lids, lacrimal apparatus, cornea, uveal tract, intraocular fluids, lens, retina and optic nerve. Where appropriate, clinical correlations are presented. Clinical assessment of physiological function utilizing instruments and/or pharmaceutical agents within the scope of contemporary primary care optometric practice is included.

**BVS611: Systemic Pharmacology. (4 units)**

Four lecture hours per week. This fundamental course in pharmacology introduces the student to basic concepts of drug effects on body organs and systems, including the eye. The pharmacological actions, mechanisms, clinical applications and potential adverse effects of systemic drugs in current clinical use are considered in detail.

**BVS612: Ocular Pharmacology. (4 units)**

Four lecture hours per week. This course presents the pharmacology of drugs used for the prevention, diagnosis and treatment of ocular diseases, as well as discussions of other drugs that may affect the eye. Specific topics include cycloplegic, mydriatic, anti-inflammatory, glaucoma, anesthetic, diagnostic and anti-infective drugs. Both prescription and non-prescription preparations are considered and discussed.

**BVS620: Clinical Medicine II. (3 units)**

Three lecture hours per week. The course builds upon the principles of general pathology learned in Clinical Medicine I. This course involves the presentation of diseases of organ systems. These include blood vessels, the heart, the blood and lymph systems, lungs, kidney, oral cavity, gastrointestinal tract, liver, pancreas, endocrine system, musculoskeletal system, skin and nervous system.

**BVS640: Ophthalmic Optics II. (3 units)**

Two lecture hours and two laboratory hours per week. This course presents the optical principles and concepts of ophthalmic lens parameters and characteristics including lens thickness, impact resistance, multifocal design, absorptive tints and coatings, lens power effectivity and lens magnification. Clinical applications of specific lens designs for occupational use and for compensation of prismatic imbalance are also discussed. The laboratory includes instruction in the fitting and adjusting of ophthalmic frames and eyewear.

**BVS650: Sensory Vision. (4.25 units)**

Three and one-half lecture hours and one and one-half laboratory hours per week. This course emphasizes the fundamentals of color vision and contrast sensitivity (spatial and temporal). Additionally, the differences in the vision function in the infant and geriatric visual systems are discussed with application to clinical care. The subject matter is explored both from the basic anatomical and physiological mechanisms involved in these sensory processes, as well as the clinical tests and procedures used to evaluate them. Clinical proficiency in the diagnosis and management of color vision deficiencies, as well as contrast sensitivity testing is expected after successful completion of this course.

**BVS651: Binocular Vision and Space Perception. (3.5 units)**

Three lecture hours and two laboratory hours per week. This fundamental course in theoretical binocular vision discusses, in detail, topics such as physical and perceived space, the horopter, retinal correspondence, fusion, fixation disparity and stereopsis. Clinical relevancy of these fundamental concepts is emphasized. Additional topics concerned with visual perception will be presented including perception of size, visual direction and visual attention. Information processing theory will be used to develop a model for visual perception. Various clinical and visual phenomena including figure ground relationships, visual illusions and neurological deficits will be used to illustrate the model.

**CLS 400: IPE Medical Spanish. (2 units)**

This interprofessional team-taught course is designed to develop and/or improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on learning basic conversation skills in order to elicit clinical histories, conduct an examination, and give oral instructions to Spanish speaking patients. Students will also be exposed to pertinent information about Latino culture as it pertains to medical care. Students will participate in language tasks through listening and speaking.

**CLS 401: IPE Medical Ethics. (1.5 units)**

This interprofessional team-taught course introduces ethical theory and presents case studies that are commonplace in clinical professional practice. The lecture sequence that includes scope of practice, ethical theories, state regulations and clinical examples is supplemented with student led group discussions of case studies using a problem-based learning format. Students examine and address issues by applying ethical theory and values to resolving situations that challenge practitioners. Ethical issues dealing with confidentiality, professional referrals, advertising, record keeping, informed consent and conflicts of interest are presented in class and discussion groups.

**CLS 402: Evidence-Based Practice. (2 units)**

Two lecture hours per week. The overall goal of this course is to prepare the future practitioner for life-long learning in the profession. Principles of evidence-based medicine are presented to allow evaluation of literature and other media relative to diagnostic and therapeutic approaches in patient care. Included in the course material are fundamental concepts in sampling, study design, sample size and power estimates, bias, validity, confounding, hypothesis testing and an overview of data types and statistical tests appropriate for clinical studies. Quantitative epidemiology approaches are presented such as incidence, prevalence, relative risk and odds ratio to determine evaluation of patient risk relative to ocular conditions and the efficacy of potential therapeutic approaches. The course will include material to enable citation and critique of vision science literature, to assist future case report preparation such as that required for application to professional organizations.

**CLS 403: IPE Population and Public Health. (2 units)**

This interprofessional team-taught course is designed to develop a foundational understanding of Public Health and its core functions of assessment, policy development and assurance. In addition the aim is to develop patient communication and educational skills for a culturally diverse patient population to address concepts of health promotion and disease prevention. Evidence-based recommendations for health promotion and disease prevention will be emphasized. Lectures, group activities, workshops, and simulations will be used to discuss and apply the concepts of disease prevention and health promotion.

**CLS 404: IPE Interprofessional Case Conferences. (0.75 units)**

This interprofessional team-taught course introduces interprofessional collaboration, communication and teamwork through small group discussion of clinical cases that are well suited for all the health professions. Students will examine the clinical cases from their professional perspective and will learn from other health professions students about their professional roles and responsibilities within the context of the case studies. The course is facilitated by an interprofessional team of faculty members who will guide the small group discussions.

**CLS560: Clinical Methods I. (4.5 units)**

Three lecture hours and three laboratory hours per week. This course is the first in a series that presents the basic clinical tests and procedures comprising a comprehensive primary eye care examination. The content of this course includes the principles and clinical methods for entrance testing and clinical refraction. The laboratory provides demonstration and practice of these clinical methods.

**CLS561: Clinical Methods II. (4.5 units)**

Three lecture hours and three laboratory hours per week. This course is a continuation of Clinical Methods I and emphasizes the principles and clinical methods for patient interviewing, history taking, assessment of binocular vision and accommodation and selected ocular health procedures. The laboratory provides demonstration and practice of these clinical methods.

**CLS580: Practice Management I. (2.5 units)**

Two lecture hours per week and ten workshop hours per quarter. This course provides learning experiences for students in planning personal and professional goals and the financial planning and arrangements necessary to reach these goals. Personal finance strategies are introduced and developed to manage debt and prepare for future business goals. Career choices using the Doctor of Optometry degree, modes and scope of optometric practice, as well as the advantages and disadvantages of the various paths are discussed. Emphasis is placed on the marketing steps that should be initiated to prepare for a professional career. The historical events affecting the profession of optometry, the state of optometry today and optometric organizations supporting the profession are also presented. Ethical implications of career choices are discussed throughout the curriculum.

**CLS 660L: Ocular Health Procedures II. (1 unit)****CLS660: Ocular Health Procedures I. (4.5 units)**

Two laboratory hours per week. This course presents basic procedures and techniques in ocular health assessment for the primary care optometrist. The principles, performance and interpretation of various health assessment procedures utilized in clinical practice are discussed. A systematic, problem-oriented approach to the diagnostic evaluation of the eye and neuro-visual system is emphasized. Standards of care and medico-legal issues in ocular health assessment are presented along with insurance codes and reimbursement guidelines. The laboratory provides experience in the use of these procedures, as well as the clinical utilization of pharmaceutical agents commonly used in primary care optometric practice. The laboratory requires that students actively participate as doctors and patients while learning these procedures.

**CLS661: Case Analysis and Prescribing I. (2.5 units)**

Two lecture hours and one discussion hour per week. This course introduces the principles and concepts of clinical case analysis and prescribing. The topics presented include graphical analysis of accommodation and vergence, prescribing guidelines, clinical problem solving, decision making, record keeping, assessment of accommodation disorders, computer vision syndrome and the comprehensive case history. The discussion sessions include the study of sample clinical cases with respect to analysis of clinical findings and prescribing options.

**CLS662: Case Analysis and Prescribing II. (3 units)**

Three lecture hours per week. This course is designed to enable the student to confidently work-up, analyze and manage clinical cases. The use of scientific principles and epidemiology to review patient history, and the formulation and testing of hypotheses to arrive at a clinical diagnosis and management is stressed. Students are taught the art and science of prescribing lenses and prisms for ametropias, presbyopia and binocular anomalies. Emphasis is placed on consideration of occupational, avocational and safety factors in determining a treatment and management plan.

**CLS663: Ocular Health Procedures II. (3.5 units)**

Two lecture hours and three laboratory hours per week. Clinical procedures used in the assessment, diagnosis, treatment and management of ocular disease, such as anterior segment eye disorders, retinal disease, the glaucomas and the ocular manifestations of systemic disease, are presented in this course. Emphasis is placed on the appropriate integration of the procedures in the ocular health examination. The laboratory solidifies the competence of the techniques utilized in the effective treatment and management of ocular disease.

**CLS664: Ocular Disease Diagnosis and Management I. (4 units)**

Four lecture hours per week. This course presents a comprehensive discussion of anterior segment diseases and disorders. Pathophysiology of ocular tissues is related to the disease processes to provide a strong understanding of the ocular disease presentation and patient symptomology. Clinical cases are presented to enhance student learning. Clinical and laboratory evaluation is discussed along with the diagnosis, treatment and management of anterior segment diseases. Current management strategies will emphasize the utilization of appropriate therapeutic agents and modalities for proper follow-up care. Selected readings help to emphasize current thoughts on treatment and management.

**CLS670: Cornea and Contact Lenses I. (4 units)**

Three lecture hours and two laboratory hours per week. The basic characteristics and design features of gas permeable contact lenses are presented. Topics addressed in this course include lens fabrication, verification and analysis, contact lens optics and fluorescein pattern interpretation. Approaches to fitting gas permeable contact lenses considering the contributions of corneal topography, refraction, over-refraction and tear lens calculations are demonstrated. Care of gas permeable contact lens patients and the anatomical and physiological changes associated with adaptation and long-term wear are discussed.

**CLS671: Cornea and Contact Lenses II. (3.5 units)**

Two lecture hours and three laboratory hours per week. Continuing applications of gas permeable contact lens fitting and management are presented gas permeable lens modification and gas permeable toric lens indications, optics and analysis are covered in both lecture and laboratory. Soft contact lens materials including silicone-hydrogels, soft contact lens fit assessment and patient management are taught. Management options for presbyopia with single vision and multifocal contact lenses are presented. Contact lens wear complications and management options are discussed. Contact lens prescribing strategies and patient cases are presented. Refractive surgery patient selection, available surgical procedures and co-management are discussed.

**CLS672: Management of Non-Strabismic Binocular Vision Conditions. (3.5 units)**

Two lecture hours and three laboratory hours per week. This course will cover the diagnosis and management of non-strabismic binocular vision conditions including anomalies of the vergence, accommodation and ocular motor systems. Lecture topics include the clinical evaluation, case analysis, diagnosis and management of these systems. A range of treatment options will be discussed, including lenses, prisms and vision therapy. Active vision therapy utilizing a sequential approach will be emphasized.

**CLS760: Pediatric Optometry. (2 units)**

Two lecture hours per week. The diagnosis and management of common vision problems in young children requires an understanding of vision development, as well as the utilization of diagnostic procedures that are developmentally appropriate. This course provides diagnostic strategies for examining the infant, toddler and preschooler. Application of pediatric tests for special needs children is presented, as well as the implication of ocular health on normal visual development. Finally, management of common vision problems in the pediatric population is presented in a case discussion format.

**CLS762A: Ocular Disease Diagnosis and Management IIA. (3 units)**

Three lecture hours per week. The evaluation, diagnosis, treatment and management of diseases of the optic nerve and the glaucomas are presented. Emphasis is placed on understanding the disease process and the clinical presentation and appropriate use of diagnostic modalities, including new technologies. Therapeutic strategies emphasize medical and surgical management, co-management and follow-up care. Medico-legal issues, patient education and standards of care are presented including record keeping, coding and reimbursement guidelines.

**CLS 762B: Ocular Disease Diagnosis and Management IIB (2 units)**

Two lecture hours per week. This course series will detail the basic anatomy and physiology of posterior segment structures (vitreous, retina choroid) and then familiarize students with the pathophysiology, presentation, diagnosis, and clinical management of ocular diseases that manifest there. Ancillary testing important to managing these conditions such as spectral domain optical coherence tomography (SD-OCT), fundus auto fluorescence (FAF), and fluorescein angiography (FANG) will also be introduced and reviewed, with an emphasis being placed on the structural and functional relationships of these tests.

### **CLS 763A Ocular Disease Diagnosis and Management IIIA. (2 Units)**

Two lecture hours per week. The course covers ocular complications associated with systemic disease. The lectures emphasize the diagnosis, treatment and management of the ocular sequela of systemic diseases as well as ocular signs that may preempt the onset of the systemic disease. Areas of emphasis include neurology, orbitopathy, endocrinology and connective tissue disorders.

### **CLS763B Ocular Disease Diagnosis and Management IIIB. (2 units)**

Two lecture hours per week. The course covers ocular complications associated with systemic disease. The lectures emphasize the diagnosis, treatment and management of the ocular sequela of systemic diseases as well as ocular signs that may preempt the onset of the systemic disease. Areas of emphasis include uveitic syndromes, rheumatology, AIDS and ocular emergencies. Optometric co-management with internal medicine and medical subspecialties is emphasized.

### **CLS764: Ocular Health Procedures III. (2.5 units)**

Two lecture hours and one laboratory hour per week. The purpose of this course is for the student to become knowledgeable in the protocol of advanced complex diagnostic and therapeutic clinical procedures involving ocular disease conditions. Special emphasis is placed on the indications and procedural application of anterior and posterior segment lasers, ocular imaging devices, neuro-imaging, diagnostic and therapeutic injections and ocular surgical procedures.

### **CLS765: Ocular Disease Case Management. (1 unit)**

Two discussion hours per week. The purpose of this course is to effectively integrate the information presented in the prior ocular disease courses. Utilizing an interactive, small group case discussion format, students will be able to enhance their abilities in proper differential diagnosis, testing protocol, treatment and management and patient education of conditions related to ocular disease.

### **CLS766: Advanced Clinical Topics. (1.5 units)**

One and one-half lecture hours per week. The purpose of this course is to present ophthalmic surgical procedures and advanced imaging techniques that are commonly encountered in practice. Special emphasis is placed on pre-operative patient selection, variations of surgical procedures and assessment of normal and complicated post-surgical outcomes. Ordering and interpretation of imaging techniques will also be presented.

### **CLS767: Ocular Health Procedures IV. (3.5 units)**

Two lecture hours and three laboratory hours per week. Clinical procedures used in the assessment, diagnosis, treatment and management of ocular disease, such as anterior segment eye disorders, retinal disease, the glaucomas and the ocular manifestations of systemic disease, are presented in this course. Emphasis is placed on the appropriate integration of the procedures in the ocular health examination. The laboratory solidifies the competence of the techniques utilized in the effective treatment and management of ocular disease.

### **CLS770: Cornea and Contact Lenses III. (3.25 units)**

Three lecture hours per week and six laboratory hours per quarter. Advanced and more complex contact lens designs and fitting options are reviewed. Topics include management of astigmatism with gas permeable toric lenses and contact lens management of special corneal topographies such as those found with post-surgical corneas, post-traumatic corneas, keratoconus and orthokeratology patients. Large diameter and scleral contact lens indications and prescribing are covered. Contact lens care of pediatric patients is discussed. Myopia control including orthokeratology is presented. A description of corneal dystrophies and degenerations including contact lens options and treatment plans is included. Discussion of the physiologic impact of contact lenses on the cornea is presented in increased depth. Diagnosis, treatment and management of contact lens related complications in various lens wear modalities are described. Patient cases are presented to assist the student in applying their classroom knowledge to patient care. This course also includes the advanced topic of ocular prosthetics. The care, fitting and management of ocular prosthetic devices are presented and discussed. There is a hands-on laboratory covering the procedures and techniques used in fitting, creation and fabrication of various ocular prosthetic devices.

### **CLS771: Vision, Perception and Learning. (4 units)**

Three lecture hours and two laboratory hours per week. The course will give the student a systematic approach for the diagnosis and management of Developmental Visual Information Processing disorders. The role of the optometrist as part of a multidisciplinary team in evaluating children with learning disabilities will be emphasized. The course will provide a review of child development, principles of standardized testing, learning disabilities and dyslexia. The purpose of the tests used in the DVIP profile will be discussed along with relating specific disorders to symptoms that are found in the case history. Finally, a sequential management plan for treating patients with DVIP dysfunction will be presented.



**CLS772: Strabismus and Amblyopia Diagnosis. (4.5 units)**

Three lecture hours and three laboratory hours per week. The evaluation of patients presenting with strabismus and/or amblyopia is discussed. A sequential examination strategy is presented with emphasis on the administration and interpretation of diagnostic testing procedures to arrive at an accurate diagnostic summary. Etiology, prevalence and characteristics of the more common types of strabismus and amblyopia are highlighted. Communication of prognostic and diagnostic outcomes with parents, patients and other health care professionals is discussed.

**CLS773: Strabismus and Amblyopia Management. (3 units)**

Three lecture hours per week. Clinical management of patients with strabismus and/or amblyopia is discussed. Sequential treatment programs, including the use of lenses, prisms, occlusion, active vision therapy and appropriate surgical referrals for prevalent types of strabismus and amblyopia are presented. Emphasis is placed on early treatment, prevention and elimination of anomalous sensorimotor fusion, as well as the reestablishment of efficient binocular vision.

**CLS774: Low Vision Rehabilitation. (4 units)**

Three lecture hours and two laboratory hours per week. The topics presented include the performance characteristics of optical and non-optical treatment options for the visually impaired; assessment, treatment and management of geriatric and visually impaired patients; development of a vision rehabilitation plan; the multi-disciplinary team approach to rehabilitation; patient communication and education; management of special populations; and practice management considerations. The laboratory presents the performance characteristics and clinical application of optical and non-optical treatment options for visual impairment.

**CLS775: Cornea and Contact Lenses IV. (1.5 units)**

Two laboratory hours and two clinic hours per week. This course consists of contact lens seminars and grand rounds. The major topic areas for student discussions and grand rounds patient presentations include management of regular and irregular astigmatism, presbyopia, irregular corneas such as keratoconus and pellucid marginal degeneration, management of orthokeratology and post-surgical corneas as well as prosthetics and dry eye. This course is designed for students to present patient cases and to submit a written case report.

**CLS780: Practice Management II. (2 units)**

Two lecture hours per week. This course coincides with the introduction of students to patient care in a clinical setting. Emphasis is placed on enhancing a student's interpersonal skills and professionalism as part of patient care. Using a seminar or workshop format, emphasis is placed on the ethical implications of professional practice. Doctor-patient communication methods are practiced and clinicians are taught how to enable patients to fully evaluate the consequences of various treatment and management options. The business concepts of staff management, public relations and practice marketing, patient retention, recall and office production monitoring are presented. Clinico-legal aspects from record keeping, patient confidentiality, documentation, coding and billing, record release and Americans with Disabilities Act issues are also covered. Optometry's role in community disaster preparedness is discussed.

**CLS781: Practice Management III. (2 units)**

Two lecture hours per week. This course is designed to provide educational information and exercises that facilitate the acquisition of knowledge and skills necessary for entering independent practice. Students will be taught modern business principles and be able to select their preferred mode of practice. The desired outcome of the course is that the student will be able to select and enter the best practice situation to meet his or her personal goals upon graduation. Each student will prepare a loan proposal to secure funding for the practice opportunity chosen.

**CLS782: Health Promotion. (1 unit)**

One lecture hours per week. The course provides students with an understanding of the optometrist's role in health promotion. Program planning, implementation and evaluation of health promotion activities are discussed. Students are given the opportunity to participate in the creation of a community-based project of their choosing to gain firsthand experience in public health optometry.

**CLE590: Optometric Clinical Service I. (0.75 units)**

This introductory course is designed to present the basics of case history and clinical decision-making in a problem-based learning curriculum. Interns also participate in clinical observations to gain an understanding of direct patient care in an academic setting.

**CLE690: Optometric Clinical Service III. (0.75 units)**

Three clinic hours per week. This course is designed to provide practical, clinical experience within Ketchum Health and external programs. Students gain clinical experience through clinical proficiencies and direct patient care under the supervision of licensed optometrists within the Primary Care Service.

**CLE691: Optometric Clinical Service IV. (1 unit)**

Four clinic hours per week. Student interns will provide comprehensive primary care examinations to the limits of their education under the direct supervision of faculty preceptors at Ketchum Health. Student interns provide primary vision care utilizing all procedures learned in the preceding pre-clinical courses.

**CLE692: Optometric Clinical Service V. (1 unit)**

Four clinic hours per week. Student interns are assigned to the Primary Care Service in Ketchum Health to conduct full-scope comprehensive eye examinations under the direct supervision faculty preceptors. Additionally, optical dispensing experiences and observations in other clinic services will prepare students for their multi-disciplinary summer internship.

**CLE790: Optometric Clinical Service VI. (3.5 units)**

Fourteen clinic hours per week. Student interns are assigned to patient care at Ketchum Health. Emphasis is placed on optometric examination skills and the utilization of problem-oriented records in all services. Demonstrations of differential diagnostic treatment and management techniques in ocular disease and special testing methods are provided. Diagnostic and therapeutic pharmaceutical agents are utilized in all clinical services under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists. Completion of a certified course in cardiopulmonary resuscitation is required during this quarter.

**CLE791: Optometric Clinical Services VII. (3.5 units)**

Fourteen clinic hours per week. Student interns are assigned to patient care at Ketchum Health. Emphasis is placed on the use of the problem-oriented examination and technical proficiency in evaluating the visual system. Diagnostic and therapeutic pharmaceutical agents are utilized in all clinical services under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists.

**CLE792: Optometric Clinical Service VIII. (3.5 units)**

Fourteen clinic hours per week. Student interns are assigned to patient care at Ketchum Health. Emphasis is placed on the use of the problem-oriented examination and technical proficiency in evaluating the visual system. Diagnostic and therapeutic pharmaceutical agents are utilized in all clinical services under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists.

**CLE793: Optometric Clinical Service IX. (3.5 units)**

Fourteen clinic hours per week. Student interns are assigned to patient care at Ketchum Health. Emphasis is placed on differential diagnosis of visual and ocular conditions, case analysis, recommendations for treatment, management, continuing care and referral criteria. Diagnostic and therapeutic pharmaceutical agents are utilized in all clinical services under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists.

**CLE890: Clinical Seminars. (4 units)**

Forty seminar hours per year. This seminar series is presented as a weekly program during each clinic rotation at Ketchum Health. The seminars highlight patient care topics including, but not limited to primary care, contact lenses, vision therapy, low vision rehabilitation, ocular therapeutics, practice management and career preparation. Basic science and clinical science concepts are integrated within the context of these topics. The format of the seminar program includes lectures, workshops, laboratories, grand rounds, demonstrations and small group discussions.

**CLE891: Optometric Clinical Service X. (12 units)**

Forty-eight clinic hours per week for a twelve-week rotation. Student interns continue outpatient care assignments in the Primary Care, Optical, Cornea and Contact Lenses, Pediatric Optometry, Vision Therapy, Low Vision Rehabilitation and Chronic Care, Special Testing and Ophthalmology Consultation Services at Ketchum Health. Emphasis is placed on differential diagnosis of eye conditions, case analysis, treatment, patient management and efficient problem-solving skills. Quality assurance by record review and direct patient care experience is emphasized. Diagnostic and therapeutic pharmaceutical agents are utilized in all clinical services under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists. Students also participate in school screening programs and rotate through specialty clinical practices.

**CLE892: Outreach Clinical Service I. (12 units)**

Forty-eight clinic hours per week in the off-campus Outreach Clinical program.

**CLE893: Outreach Clinical Service II. (12 units)**

Forty-eight clinic hours per week in the off-campus Outreach Clinical program.

**CLE894: Outreach Clinical Service III. (12 units)**

Forty-eight clinic hours per week in the off-campus Outreach Clinical program.

The fourth professional year is designed to promote continued development of the student's emerging clinical problem-solving abilities. The focus is on higher order cognitive thought processing such as analysis and evaluation, rather than basic levels of knowledge and comprehension. The instruction material is designed to advance the student's content knowledge beyond the first three years through challenging patient care problems that highlight or emphasize differential diagnosis, management decisions, referral decisions and follow-up, as well as address newer techniques and procedures for diagnosis and management. The outreach clinical programs provide students with comprehensive clinical education in the diagnosis, management and treatment of conditions of the visual system. Patient groups served are diverse in age, race, culture, socio-economic level and health delivery systems. Patient care is provided in various settings including optometric and co-management centers; Department of Veterans Affairs centers; HMOs; military; public health and USPH Indian Health clinics; medical ambulatory clinics; community health centers; and general and specialty hospitals. Under direct supervision of licensed optometric faculty, students provide full-scope optometric care in specialty clinics. Interdisciplinary team training in vision rehabilitation and primary care educate students for the role of optometrists as vital members of the health care team. Advanced clinical instrumentation and both diagnostic and therapeutic pharmaceutical agents are utilized, in all clinical care settings, under the direct supervision of licensed optometric faculty and/or board-certified ophthalmologists.

To offer fourth-year students a wide variety of clinical educational experiences, SCCO has approximately 40 primary and 65 alternate outreach clinical program affiliations with various military, public health, Department of Veterans Affairs, low vision rehabilitation, developmental/pediatric clinics, co-management clinics, inter-professional clinics and private practices. The clinics are located throughout the U.S., with the majority located west of the Mississippi River, as well as international sites located in Japan. These clinical programs are operated in conjunction with a number of independent, local, state and federal agencies.

Students select their outreach assignments at the beginning of the third professional year, which allows for a full year of planning.

## RESIDENCY PROGRAMS

The mission of the Department of Residency Programs of SCCO at MBKU is to establish, promote and support post-graduate residency training. Residency programs are uniquely designed to advance the intellectual knowledge and enhance the clinical expertise of residents through excellence in patient care, scholarly activity and research.

SCCO at MBKU has residency programs that cover the areas of Cornea & Contact Lenses, Low Vision Rehabilitation, Neuro-Optometry, Ocular Disease, Primary Care and Pediatric Optometry/Vision Therapy. There are currently 47 residency positions within 22 programs in the areas of Indian Health Service, multi-disciplinary settings, private-practice settings, on-campus programs and Veteran's Affairs. For detailed information regarding residency programs, please visit our website: [www.ketchum.edu](http://www.ketchum.edu). These one-year, accredited postdoctoral programs, offer advanced clinical management experiences in clinical specialties with additional opportunities in teaching, along with scholarship requirements. All programs are structured in accordance with the guidelines of the AOA's Accreditation Council on Optometric Education and are fully accredited or in the process for review. All residents receive a stipend, liability coverage and various benefits depending on the specific program.

## SCHOLARSHIPS AND GRANTS

Each year more than 150 scholarships and awards are available to qualified students at MBKU to recognize and honor those who have achieved excellence in academics, clinical abilities, research, leadership and service. Recipients of scholarships and awards are generally determined by the Dean of SCCO upon the recommendations of appointed faculty committees. In recognizing that multiple students may meet eligibility criteria for the various awards, the administration makes every effort to recognize as many students as possible. Information regarding any scholarships or awards may be obtained from the dean of SCCO.

Annual scholarships are available to students entering any of the four professional years of study at SCCO and are based on criteria that include academic excellence, clinical ability, financial need, leadership, etc. All monetary scholarships are directly applied to the recipients' education expenses at the university.

Awards are made on the basis of merit in coordination with the guidelines set forth by the MBKU award donor whenever possible. These awards recognize the noteworthy achievements made by optometric interns.

Descriptions of individual scholarships and awards may be found by accessing the Tuition & Financial Aid page on the SCCO Admissions website at [www.ketchum.edu](http://www.ketchum.edu).

## COMMENCEMENT AWARDS

Latinized honors are accorded to those students who have excelled scholastically on the following basis:

Summa Cum Laude	3.80 – 4.00
Magna Cum Laude	3.60 – 3.79
Cum Laude	3.40 – 3.59

## MASTER OF SCIENCE IN VISION SCIENCE

### Overview

The Master of Science in Vision Science prepares students to embark on a career in teaching and/or research in the basic or clinical science of vision. Students accepted into the program must be enrolled at SCCO at MBKU in the professional optometry program, hold a Doctor of Optometry or Doctor of Medicine degree, or hold a bachelor's degree from a university in the U.S. or Canada.

The need for new knowledge in the vision sciences is great; teaching and research opportunities are numerous in a spectrum of academic, industrial and professional settings. Although the program has sufficient structure to provide a broad foundation of scientific knowledge of vision systems, it is at the same time appropriately flexible to permit candidates to develop expertise in areas of special interest.

There are five tracks currently offered.

1. A concurrent program for students currently applying to or enrolled in the SCCO Doctor of Optometry program.
2. Stand-alone full-time two-year program for students with an earned Doctor of Optometry degree.
3. Stand-alone full-time program for students with an earned bachelor's degree.
4. Combined two-year Master of Science and residency program.
5. Part-time program for individuals already holding a Doctor of Optometry degree.

All of these tracks would incorporate the development and presentation of seminars and formal lectures in specific courses to develop the candidates' educational skills.

The Master of Science in Vision Science tracks require the equivalent of two years full-time study, including 20 quarter credits for core and elective didactic course work, as well as a minimum of 40 credit hours of research, culminating in a written thesis.

## **ADMISSIONS**

The Master of Science in Vision Science is envisioned as a research-based graduate degree. Research is a vital part of the ongoing development of the profession since it provides the basis for new understanding and new treatments of vision conditions. The research undertaken in fulfillment of the Master of Science degree will provide new knowledge for the profession, train the candidate in the conduct of sound research as a potential future educator and researcher and enhance the reputation of the institution as a leader in the profession through publication of results in quality peer-reviewed journals.

SCCO's Master of Science in Vision Science program at MBKU seeks to admit students possessing the qualities and motivation necessary for success in clinically applied research. Admission is based on an assessment of both academic and non-academic qualifications including; an application, letters of recommendation, personal statement and the admissions interview.

All applicants must submit undergraduate and graduate transcripts with a minimum grade point average of 3.00, an application which may be obtained from [studentaffairs@ketchum.edu](mailto:studentaffairs@ketchum.edu) and a \$75 non-refundable application fee, letters of recommendation attesting to the applicant's ability in the area of research, a 300-500 word personal statement of interest, including current goals, personal career plans, reasons for selecting a field of study and a current curriculum vitae. In addition, applicants interested in concurrent Doctor of Optometry and Master of Science in Vision Science enrollment must submit OAT scores. Applicants who already hold the Doctor of Optometry degree must submit NBEO scores. Applicants interested in the combined residency and Master of Science in Vision Science program must have submitted an ORMS application.

Additional requirements for applicants who are not U.S. citizens or permanent U.S. residents include having graduated from an optometry or medical school that has comparable training to a U.S. optometry or medical program. Applicants need to be English speaking or have demonstrated satisfactory command of the English language by taking the Graduate Record Examination (GRE) and the Test of English as a Foreign Language (TOEFL). The TOEFL can be replaced by the International English Language Testing System (IELTS). The minimum acceptable scores are: GRE (300), TOEFL (paper 550, internet 80), TSE (50) and IELTS (7.0). All tests must be taken within two years of applying for the Master of Science in Vision Science program.

All foreign applicants will need to provide proof of adequate funds to cover all fees and expenses for the entire graduate program as a condition for the issuing of a visa to enter the U.S. These applicants are not eligible for funding (e.g., teaching assistant, research assistant, school grants or aid) to pursue the Master of Science degree. Interviews are required of all applicants.

## **Accuracy of Information**

The submission of any false or misleading information of any kind in support of an application for admission to the graduate programs of the SCCO at MBKU can result in the permanent cancellation or rescission of admission by the assistant dean for graduate studies. It is the responsibility of the applicant that all information is accurate and complete.

## **FINANCIAL INFORMATION**

### **Tuition**

#### **2018-2019 Tuition, Master of Science in Vision Science**

The tuition for the Master of Science in Vision Science program is \$6,000 per quarter. Currently, this program tuition is waived for candidates also concurrently enrolled in the Doctor of Optometry program.

## **CURRICULUM**

The Master of Science in Vision Science is a research-based graduate degree. Research is a vital part of the ongoing development of the profession and is incorporated into the mission statement of SCCO. The program emphasizes hypothesis-driven research and the development of analytical skills in experimental optometry and vision science.

Each of the program tracks incorporates the development and presentation of seminars and formal lectures in specific courses to develop the students' skills in scientific presentations. Moreover, all degrees incorporate the design and conduct of an original research project, a written thesis and defense of the thesis before a graduate committee.

The required coursework taken in the Master of Science in Vision Science program provides the student with an in-depth understanding of vision science principles and concepts. The elective coursework further emphasizes the specific sub-discipline that is of interest to the student. The research undertaken in fulfillment of the Master of Science degree will provide new knowledge for the profession and train the student in the conduct of sound research. Thus, the background in the required and elective coursework combined with the research training prepares the student to enter a career as an educator and/or researcher. This career could be in an academic, institutional, corporate, or clinical setting.

### **Master of Science degree requirements**

- Completion of the curriculum requirements.
- Completion of a minimum of 60 quarter-hours of graduate credit.
- A cumulative graduate grade point average of at least 3.00.
- Completion of the Master's research requirement, successful defense of the Master's thesis and submission of a final bound copy of the thesis. The paper must be of publication quality.

## COURSES

Completion of the program requires a total of 60 units of which 20 units are from course work and 40 units are from the research thesis. A total of 14 units are required from core curriculum described below and an additional 6 units are required from elective courses.

### **BVS900: Special Topics. (1-4 units)**

Individual study and advanced topics in the vision sciences.

### **BVS901: Teaching in the Vision Sciences (2 units)**

Clinicians with additional scientific/research training (clinician-scientists) are invaluable to the growth of the vision field. In particular, such individuals can contribute greatly to higher education programs in optometry and vision science. A foundation in teaching and, those aspects specific to vision science, is critical to acquire for future success in academia. Teaching methodology can be broadly applied to both didactic and clinical courses. This course will be presented in seminar format with assigned readings and several practical assignments to assess whether the learning objectives have been met.

### **BVS902: Biostatistics. (2 units)**

Statistics is an essential discipline in the field of research, important first in understanding the scientific literature relative to validity and appropriateness, and later to the conduct of the student's thesis project. A researcher needs to have a solid working knowledge of the various types of research data and how these were obtained, the distribution of those data, and formal hypothesis testing using those data to draw conclusions regarding the import of the findings. This course will examine the numerical and graphical representation of data, the concepts of sample size, data distributions and appropriate hypothesis testing, inferences regarding dependent and independent data, and parametric and non-parametric evaluation. A free statistical shareware, "R" software, will be used by the student to undertake sample problem analysis to further cement the understanding of the lecture concepts.

### **BVS910: Ocular Anatomy and Physiology. (4 units)**

Knowledge of the anatomy and physiology of ocular structures is one of the requirements for not only the practice of optometry but also research in this field. This course will supplement the ocular anatomy and ocular physiology courses taught to all Optometry students and concentrate on areas which are most likely to be studied in optometric research. The course will require independent study and group discussion. Each student will prepare and conduct a literature review on an anatomic area and present it in a seminar format.

### **BVS 910A Ocular Anatomy and Physiology (4 credits)**

Knowledge of the anatomy and physiology of ocular structures is one of the requirements for not only the practice of optometry but also research in this field. This course will review the basic ocular anatomy and ocular physiology material taught to all Optometry students and concentrate on areas which are most likely to be studied in optometric research. The course will require independent study and group discussion. Each student will prepare and conduct a literature review on an anatomic area and present it in a seminar format.

### **BVS 913 Current Topics in Tear Film and Dry Eye (3 credits)**

In recent years the tear film and ocular surface has been the subject of intense interest and research, due in part to the recognition that ocular surface disease is a common condition with major implications for sufferers' quality of life. This course will provide an overview of current knowledge relative to ocular surface and tear film structure and dynamics, including what is currently known and unknown concerning tear composition and behavior. Clinical topics such as the factors that influence tear film stability and the mechanisms of corneal staining will be examined from current evidence to provide a translational understanding of basic mechanisms that influence the human ocular surface in health and disease. The course will be taught in a lecture format with hands-on sessions for demonstration and experience with instruments and techniques aimed at generating ocular surface and tear film information.

### **BVS 914 Vegetative Physiology of the Cornea (3 credits)**

This course will describe the anatomy and physiology of the normal cornea in depth. It will provide an understanding of the various diseases and dystrophies of the cornea from an etiological basis. The course will allow the student to understand the interplay between contact lens complications and normal/abnormal corneal physiology. This will be accomplished by reviewing the literature in this area.

### **BVS 920 Sensory Neuroscience (4 credits)**

Sensory neuroscience is a subfield of neuroscience which explores the anatomy and physiology of neurons that are part of sensory systems such as vision, hearing, and olfaction. This course will focus on vision. Visual neuroscience is the study of the visual system including the visual cortex. Its goals are to understand the neurophysiology of the visual system, and to understand how neural activity results in visual perception and behaviors that depend on vision.

### **BVS 920A Sensory Neuroscience (4 credits)**

Sensory neuroscience is a subfield of neuroscience which explores the anatomy and physiology of neurons that are part of sensory systems such as vision, hearing, and olfaction. This course will focus on vision. Visual neuroscience is the study of the visual system including the visual cortex. Its goals are to understand the neurophysiology of the visual system, and to understand how neural activity results in visual perception and behaviors that depend on vision.

### **BVS 921 Color Vision (3 credits)**

Color vision is an active area of both clinical and basic science research. Clinical color vision research requires an understanding of more rigorous testing and research methods used in color vision studies. The course will be presented through a roughly equal division between lecture and laboratory, and will require presentation of a well developed experimental design proposal for a research study.

### **BVS 924 Neurophysiology of Amblyopia (3 credits)**

Our knowledge of the anatomy and physiology of the visual pathway has expanded greatly over the last few decades. This increase in knowledge has to a large extent been driven by investigations into the neural abnormalities resulting from amblyopia. Without a clear understanding of the neurophysiological basis of amblyopia, treatments for this condition cannot be developed. This course will supplement the Neurophysiology course taught to all SCCO students and concentrate on areas dealing with amblyopia. The course will require independent study and group discussion. Each student will prepare and conduct a literature review on an area of interest and present it in a seminar format.

### **BVS940: Visual Optics. (4 units)**

The eye is studied as the physiological optical element of the visual system. The optical components of the eye are discussed in terms of their geometrical, physical, physiological, psychophysical and optical properties. The eye is considered as an image forming mechanism, where each component contributes to the nature and quality of the retinal image. The relationship between optics and visual performance is discussed, including the effects of ametropias and oculomotor systems on vision. Students will demonstrate their ability to search and evaluate the visual optics literature and to communicate effectively through writing and in small group discussions.

### **BVS 940A Visual Optics (4 credits)**

Students in this course will learn about the optics of the human eye. They will rely on their present knowledge of geometrical and physical optics, and apply this knowledge to a study of the eye. They will understand how the optical characteristics of the eye relate to the performance of the visual system as a whole. Importantly, they will learn how the optics of the eye affects performance in everyday activities. They will learn about normal variation in the optical characteristics of the eye, and the optical consequences of various ocular conditions and clinical treatments and procedures. Students will be able to integrate what they know to find solutions to practical problems in vision. They will demonstrate their ability to search and evaluate the scientific literature, and to communicate effectively through writing and in small group discussions.

### **BVS950: Sensory Processes and Perception. (4 units)**

The purpose of the course is the study of sensory processes which encompass three areas of vision function important to scientists: the perception of light, form and color. Students will examine spatial vision and temporal vision, the field of vision, the range of color vision and many other areas of current vision research. The course will be presented through a roughly equal division between lecture and laboratory, and will require presentation of a proposal for a research study related to the material in the course.

### **BVS 950A Sensory Processes and Perception (4 credits)**

A foundation in vision science is rooted in the underpinnings of basic sensory processes. The study of sensory processes encompasses three areas of vision function important to scientists: the perception of light, form, and color. This knowledge is routinely used by vision scientists when conducting research studies examining spatial vision and temporal vision, the field of vision, the range of color vision, and many other areas of current vision research. The course will be presented through a roughly equal division between lecture and laboratory, and will require presentation of a proposal for a research study related to the material in the course.



**BVS951: Psychophysical Methods and Experimental Design. (4 units)**

The purpose of this course is to provide a framework into which study methodologies are executed. Content of the course includes photometry and luminance calibration, signal detection theory, ROC analysis and systematic experimental design. The course will be presented through a roughly equal division between lecture and laboratory, and will require presentation of a well-developed experimental design proposal for a research study.

**BVS 951A Psychophysical Methods & Experimental Design (4 credits)**

A foundation in vision science is rooted in the underpinnings of the various methods and experimental designs used to answer the scientific questions that are asked. The psychophysical methodology/approach is the historical root of vision science. It often precedes, and often drives, the neurophysiological studies that seek to resolve and/or explain the psychophysical findings. Knowledge of the general methods/designs used in psychophysical based research serves to provide a framework into which study methodologies are executed within. The course will be presented through a roughly equal division between lecture and laboratory, and will require presentation of a well-developed experimental design proposal for a research study.

**BVS952: Ethics in Research. (2 units)**

Through reading, discussion and writing, students will gain sensitivity for and knowledge of social ethics and the social context of scientific research. They will have knowledge of those elements of ethics, good scientific practice and law that are essential to perform research in the biomedical disciplines, with or without human subjects. They will have knowledge and skills to develop and implement effective, ethical research projects. The course content is organized in three strands: an introduction to ethics, the human subject and research integrity.

**BVS 957 Accommodation (3 credits)**

Human ocular accommodation is studied from a functional viewpoint, with an aim of understanding its role in daily life. Accommodation is introduced by way of J. J. Gibson's question of how depth is extracted from retinal images. Empirical data on the nature of the steady state and dynamic characteristics of accommodation are reviewed. Then, the stimuli to accommodation are studied within Heath's system of operational classification. Various external and internal factors in the accommodation response are investigated. The development of accommodation in infancy and childhood, and its normal decline with age (presbyopia), are studied. Theories of the ocular mechanism of accommodation are studied, including geometrical-optical and physical models of the crystalline lens in accommodation. Control system approaches to accommodation are introduced. The synkinesis between accommodation and vergence is discussed. The nature and causes of presbyopia and other accommodative anomalies are studied. Procedures and apparatus for measuring accommodation are studied, with opportunity to design and implement simple accommodation experiments with two common instruments.

**BVS 959 Vision and Reading (3 credits)**

This course will provide an integrative approach to investigating associations between vision and reading. The first part of the course will review the basic processes that are involved in reading and learning to read. The next part of the course will investigate how specific vision processes are involved in reading. This includes contrast sensitivity, temporal processing, fixation disparity, and span of recognition. Finally, clinical approaches to analyze the relationship between vision and reading will be discussed.

**BVS960: Research Thesis. (variable credits)**

The Master of Science in Vision Science at the SCCO emphasizes the development and execution of an original vision research project. Each student must write a paper based on the student's research activities. The paper must be of publication quality. A Master's thesis describing this project is required for completion of the program and will be reviewed by a Thesis Committee. Time spent planning, carrying out the research project, data analysis and writing the thesis will be assigned BVS 960. This can be from 1-12 credits per quarter. Total minimum units required for thesis is 40 credits. This also requires a defense of the thesis.

**Elective courses available:**

<b>Number</b>	<b>Course Title</b>	<b>Units per Qtr</b>
BVS 911	Vegetative Physiology of the Eye	3
BVS 912	Visual Physiology of the Eye	3
BVS 913	Current Topics in Tear Film & Dry Eye	3
BVS 914	Vegetative Physiology of the Cornea	3
BVS 920	Sensory Neuroscience	4
BVS 921	Color Vision	3
BVS 922	Lateral Geniculate Nucleus & Cortex	3
BVS 923	Receptors & Cell Signaling Pathways	3
BVS 924	Neurophysiology of Amblyopia	3
BVS 930	Ocular Biochemistry	3
BVS 931	Ocular Pharmacology	3
BVS 932	Ocular Pathology	3
BVS 941	Optics of the Eye	3
BVS 953	Spatial-Temporal Processes	3
BVS 954	Ocular Motility	3
BVS 955	Binocular Vision	3
BVS 956	Visual Perception	3
BVS 957	Accommodation	3
BVS 958	Visual Development	3
BVS 959	Vision & Reading	3

# COLLEGE OF HEALTH SCIENCES

## SCHOOL OF PHYSICIAN ASSISTANT STUDIES

### MASTER OF MEDICAL SCIENCE

#### **Mission**

Our mission is to educate individuals to become compassionate Physician Assistants who provide the highest quality health care in a collaborative environment, are dedicated to their communities, and advance the PA profession.

#### **Our Values**

##### **Integrity**

We value integrity and professionalism by modeling honesty, thoughtfulness, and consistency in our words and actions.

##### **Compassion**

We value the dignity of our patients and their families and recognize compassion must be a cornerstone of our professional interactions.

##### **Respect**

We value the highest level of respect by advocating the virtue of inclusion while embracing the differences within communities where we serve, work and teach.

##### **Service**

We value service for humanity and are committed to the welfare of others.

##### **Lifelong Learning**

We value lifelong learning as an essential component of quality education and ongoing evidence-based medical care.

### **PROGRAM OVERVIEW**

Marshall B. Ketchum University provides the highest quality PA education through excellence in teaching, patient care, research and public service.

The College of Health Sciences' School of Physician Assistant Studies offers a 27-month, post-baccalaureate program leading to the degree of Master of Medical Science. The class size is 40 students.

The didactic phase of the PA curriculum provides the foundation for clinical practice with instruction in applied medical sciences, patient assessment, clinical medicine and pharmacotherapeutics. The curriculum is organized into systems-based modules which incorporate anatomy, physiology, pathophysiology, clinical medicine, clinical skills, patient assessment, diagnostic testing, and pharmacotherapeutics taught in an organized and integrated sequence with a strong emphasis on active learning. Other courses include medical ethics, PA professional practice issues, evidence-based practice, and population and public health. Students will also participate in interprofessional education courses, and will experience supervised patient interactions.

The clinical phase of the PA curriculum focuses on direct patient care in various clinics, hospitals and health centers. The program offers a vast array of clinical opportunities with diverse and challenging patient encounters. In order to graduate from the School of Physician Assistant Studies Master of Medical Science Program, a student must complete and pass each course, clinical rotation, Masters Capstone Project, and multi-faceted summative evaluation.

The Master's Capstone Project involves two components: 1) teams of 3-4 students conduct a review of literature and needs analysis in order to identify a population healthcare need. The students then develop and implement a project that addresses the healthcare need. 2) Students develop a scholarly poster and presentation that meets national and/or state conference standards.

## **ADMISSIONS**

The School of Physician Assistant Studies is committed to accepting a diverse group of qualified individuals from a variety of backgrounds and experiences in accordance with MBKU's nondiscrimination policy. Each application is reviewed and the merits are considered individually. Additional consideration is given to applicants with volunteer community service or military experience (verifiable by DD-214), or applicants in the Pre-Health Professions Linkage programs at Cal State Fullerton or Cal State Long Beach.

We do not accept previous experience or medical training for advanced placement in the Master of Medical Science program. All students are expected to complete all didactic and clinical elements of the program. The School of Physician Assistant Studies does not permit students to matriculate on a part-time basis, nor does the curriculum lend itself to an accelerated learning schedule.

### **Criteria**

#### **Technical Standards**

PAs must have the knowledge and skills to practice in a variety of clinical situations and to render a wide spectrum of care based on the patient's needs. In addition to academic achievements, exam results and faculty recommendations, PA students must possess the physical, emotional and behavioral capabilities requisite for the practice of medicine as a PA. In order to successfully complete the PA program, students must demonstrate proficiency in academic and clinical activities with regard to the competencies described below.

#### **Observation**

Candidates and PA students must have sufficient sensory capacity to observe in the classroom, the laboratory, the outpatient setting and at the patient's bedside. Sensory skills adequate to perform a physical examination are required including functional vision, hearing, smell and tactile sensation. All these senses must be adequate to observe a patient's condition and to accurately elicit information through procedures regularly required in a physical examination, such as inspection, auscultation, percussion and palpation.

#### **Communication**

Candidates and PA students must be able to:

- Communicate effectively and sensitively with patients and others in both academic and healthcare settings.
- Speak clearly.
- Communicate effectively and efficiently in oral and written English with faculty and staff, patients and all members of the health care team. Communication includes not only speech, but also reading and writing skills.
- Demonstrate reading skills at a level sufficient to accomplish curricular requirements, provide clinical care for patients and complete appropriate medical records, documents and plans according to protocol in a thorough and timely manner.
- Perceive and describe changes in mood, posture, activity and interpret non-verbal communication signs.

## **Motor coordination and function**

Candidates and PA students are required to possess motor skills sufficient to directly perform palpation, percussion, auscultation and other basic diagnostic procedures; and execute motor movements reasonably required to provide basic medical care and emergency care to patients, including but not limited to:

- Cardiopulmonary resuscitation.
- Administration of intravenous medication.
- Application of pressure to stop hemorrhage.
- Opening of obstructed airways.
- Suturing of simple wounds.
- Performance of simple obstetrical maneuvers.
- Negotiating patient care environments and mobility between settings, such as clinic, classroom, laboratory and hospital.
- Maintaining sufficient physical stamina to complete the rigorous course of didactic and clinical study. Long periods of sitting, standing or moving are required in classroom, laboratory and clinical settings.

## **Intellectual-conceptual, integrative and quantitative abilities**

These abilities include measurement, calculation, reasoning, analysis and synthesis. Problem solving, the critical skill demanded of PAs, requires all of these intellectual abilities. Candidates and PA students must be able to:

- Interpret dimensional relationships and understand the spatial relationships of anatomical structures.
- Search, read and interpret medical literature.

The ability to incorporate new information from peers, teachers and the medical literature in formulating diagnoses and plans is essential. To complete the PA program, candidates must be able to demonstrate proficiency of these skills and the ability to use them together in a timely fashion during medical problem-solving and patient care.

## **Behavioral and social attributes**

Compassion, integrity, ethical standards, concern for others, interpersonal skills and motivation are all personal qualities important to providing compassionate and quality patient care.

Candidates and PA students must:

- Demonstrate the maturity and emotional stability required for full use of their intellectual abilities.
- Accept responsibility for learning, exercising good judgment and promptly completing all responsibilities attendant to the diagnosis and care of patients.
- Understand the legal and ethical aspects of the practice of medicine and function within both the law and ethical standards of the medical profession.
- Interact with patients, their families and health care personnel in a courteous, professional and respectful manner.
- Tolerate physically taxing workloads and long work hours, to function effectively under stress and to display flexibility and adaptability to changing environments.
- Contribute to collaborative, constructive learning environments; accept constructive feedback from others; and take personal responsibility for making appropriate positive changes.

It is our experience that a number of individuals with disabilities, as defined by Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, are qualified to study and work as health care professionals and scientists with the use of reasonable accommodations. To be qualified for health sciences programs at MBKU those individuals must be able to meet both our academic standards and the technical standards, with reasonable accommodations if necessary.

For further information regarding services and resources for students with disabilities and/or to request accommodations, please contact the Office for Student Affairs.

## Prerequisites

The most competitive applicants should possess at a minimum:

- Overall GPA of 3.0
- Science GPA of 3.0
- 1000 hours of verifiable, direct, hands-on patient care experience.

## Degree Prerequisite

A baccalaureate degree from a regionally accredited college or university, or an equivalent institution as determined by Marshall B. Ketchum University, is required for admission.

Applicants educated outside the U.S. must utilize a transcript evaluation service to verify their degree and course work. The academic record must show credits and grades equivalent to those given by U.S. institutions of higher learning.

## Coursework Prerequisites

The following courses must be completed at a regionally accredited institution in the U.S., with a grade of “C” or better and are the minimum requirements for all applicants. A "Pass" grade will also be accepted.

12 semester or 16 quarter units of Biological Science courses which must include:

- Microbiology w/ lab
- Human Anatomy w/lab (Must be taken in the last 7 years)
- Human Physiology w/lab (Must be taken in the last 7 years)
- Remaining units can be in any area of the biological sciences

One course (3 semester or 4 quarter units) of each of the following:

- Biochemistry or Organic Chemistry
- Statistics
- General Psychology

Advanced Placement (AP) credits will be accepted for Psychology and Statistics.

All prerequisites must be completed at a college or university accredited by one of the U.S. regional accrediting associations. Please see Accrediting Institutions for a list of those associations. To verify a college or university accreditation, you are advised to visit their website.

## Online Course Policy

MBKU accepts prerequisite lecture courses completed online but does not accept labs completed online. MBKU requires that all labs be completed in a classroom setting. Virtual labs are typically not considered an acceptable format. Some online courses offer an online lecture with labs completed in a classroom setting. This is an acceptable format. Online courses completed through regionally accredited college or universities are acceptable.

## Requirements In Progress

Applicants may submit their CASPA application with two prerequisites in-progress. However, all admissions requirements, degree and coursework prerequisites must be completed by December 31. Applicants should be aware; some universities have lag times in producing official transcripts which could impact their ability to be considered for admission.

## Clinical Experience

Health care experiences will be considered on a case-by-case basis and dependent upon the quality of patient interaction.

Examples of preferred clinical experiences:

- Back Office Medical Assistant (MA)
- Certified Nurses' Aide
- Clinical Care Extender
- EMT (patient care hours only)
- Licensed Vocational Nurse
- Military medic or corpsman
- Occupational Therapist Aide
- Paramedic
- Physical Therapy Aide
- Radiological Technician
- Registered Nurse
- Respiratory Therapist
- Scribe

## Foreign Applicants

To be eligible to apply to MBKU, foreign/international applicants must fulfill these requirements:

1. You must have completed all the prerequisite courses in either the U.S. or Canada. Please note that even though you have taken the prerequisite courses as part of your undergrad degree in a foreign university, you will need to repeat the prerequisite courses at a college or university in the U.S. or Canada.
2. You must send all non-U.S./Canadian transcripts to CASPA (the centralized application service utilized by PA programs).
3. While the prerequisite courses are not accepted from a foreign university, the transcript to verify a degree and license is required. Applicants should have their foreign (Non U.S./Canadian) transcripts evaluated by one of the approved services and the evaluation forwarded to CASPA.
4. The TOEFL must be completed and official scores submitted to MBKU using the school's code: 4893.

## Test Scores

Scores from the Graduate Records Examination (GRE) are not required. Applicants who have not earned a baccalaureate degree from a regionally-accredited institution must also submit official scores from the Test of English as a Foreign Language (TOEFL), regardless of the official language of the country in which the education took place or the predominant language of the degree-granting institution. Scores should be sent directly using Marshall B. Ketchum University Code 4893. Minimum scores are noted below:

- Reading 22/30
- Listening 22/30
- Speaking 26/30
- Writing 24/30

## Advanced Placement

We do not accept previous experience or medical training for advanced placement in the PA program. All students are expected to complete all didactic and clinical elements of the program.

## Procedures

All applicants to SPAS at MBKU must submit their application through the Centralized Application Service for Physician Assistants (CASPA). The website for the service is <https://portal.caspaonline.org/>. All applicants should review the information and instructions on the CASPA website for submitting transcripts and letters of recommendation. Applicants will only have to submit transcripts and letters of recommendation to CASPA, not to the individual schools and colleges.

Upon completion of the application, applicants may designate MBKU as a school to receive the application.

A “complete date” status is given when an application is e-submitted and all transcripts, payments, and at least three letters of reference have been received by CASPA and attached to the application. Documents should be sent to CASPA several weeks prior to this date to ensure items arrive before the above deadline. No exceptions will be considered. Applicants must have a CASPA application “complete date” on or before the November 1 deadline.

## Letters of Recommendation

Three (3) letters of recommendation are required. Reference letters should not be from personal friends or family members. Letters of recommendation must be submitted directly to CASPA on or before November 1.

## Process

Once the CASPA application is received by the admissions office, applicants will receive an email with a link granting access to the MBKU portal, [my.ketchum.edu](http://my.ketchum.edu). Applicants must submit the non-refundable \$75 supplemental application fee.

The number of applicants to SPAS at MBKU exceeds the number of available seats. Some applicants will not be admitted even though their academic records surpass the specified minimum requirements. Our goal is to select students who are academically capable of completing the Master of Medical Science program.

The admissions process begins with a screening of each applicant’s scholastic qualifications including college records and prerequisite completion. This is done in multiple steps. First is a screening of each applicant’s degree and coursework prerequisites for admission. Only those applicants who have completed all of the required courses move to the second stage. Next, the applicants who have met the all the required prerequisites are then reviewed for completion of their direct patient care experience. Third, applicants move to the next stage based on the totality of their GPA, academic qualifications, type and number of patient care experience, and any military experience.

Next, the applicant’s personal qualifications (essay, letters of recommendation, honors, awards, extracurricular activities and community service, etc.) are evaluated and reviewed by members of the Admissions Committee, as the study and practice of a PA requires great responsibility, maturity, ethics, devotion, intellectual curiosity and social commitment.

Those who meet the academic, clinical and personal criteria of the preliminary screening may be considered for an interview with SPAS at MBKU.

Additionally, the interviewing team endeavors to appraise such personal qualities as communication skills, problem solving skills, interpersonal skills, maturity and career motivation. Applicants will interview with various members of SPAS faculty, practicing PAs from the community, members of the university administration and faculty members from other MBKU colleges. Applicants are invited to matriculate based on their total interview score and the number of available class seats.

Provisional acceptance is offered pending successful completion of a routine criminal background check.



Accepted applicants are required to submit a non-refundable matriculation fee of \$1500 within two weeks of their acceptance. The full \$1500 deposit will be credited to the Fall Quarter tuition upon their enrollment.

## FINANCIAL INFORMATION

### Tuition

#### 2018–19 Tuition, Master of Medical Science program

	Summer Quarter	Fall Quarter	Winter Quarter	Spring Quarter	Total
1st-yr. tuition	-0-	\$11,784	\$11,784	\$11,784	\$35,352
Matriculation credit (1st-yr.)	-0-	-1,500	-0-	-0-	-1,500
Net tuition: 1st-yr.	-0-	\$10,284	\$11,784	\$11,784	\$33,852
Net tuition: 2nd-yr.	\$11,784	\$11,784	\$11,784	\$11,784	\$47,136
Net tuition: 3rd-yr.	\$11,784	\$11,784	-0-	-0-	\$23,568

#### Tuition for returning students enrolled less than full time

Tuition (less than full time) per unit . . . . .	\$688
Audit per unit . . . . .	\$100

### Fees

Mandatory Equipment and Materials fee . . . . .	\$245/quarter
Annual Student Association fee . . . . .	\$108
Class Account fee . . . . .	\$45
Graduation fee (only charged the final quarter) . . . . .	\$150
Parking fee per quarter (optional) . . . . .	\$60

### Other costs

Cost estimates for books, instruments, equipment and supplies for the 27-month program is \$5,249.

While the occasion has not previously presented itself, the Board of Trustees of Marshall B. Ketchum University does reserve the right to change the tuition and fees or to establish additional fees for special features or services if deemed necessary.

## CURRICULUM

The didactic phase of the PA curriculum provides the foundation for clinical practice with instruction in applied medical sciences, patient assessment, clinical medicine and pharmacotherapeutics. The curriculum is organized into systems-based modules which incorporate anatomy, physiology, pathophysiology, clinical medicine, clinical skills, patient assessment, diagnostic testing and pharmacotherapeutics and is taught in an organized and integrated sequence with a strong emphasis on critical thinking and active learning. Other courses include medical ethics, PA professional practice issues, population health and evidence-based practice. In addition, students learn procedures including: sterile technique, venipuncture, IV placement, injections, airway management and endotracheal intubation, urinary bladder catheter insertion, casting and splinting, local anesthesia and wound management and closure. Students also participate in interprofessional education courses and will experience supervised and simulated patient interactions. Integration of the curriculum facilitates the development of knowledge that is relevant and meaningful to clinical practice and which is amendable to updating and development as a part of an ongoing process of lifelong learning. Students must successfully pass all first phase didactic academic requirements in order to progress to the second phase clinical rotation training.

The didactic Clinical Medicine modules include:

- Advanced study of human anatomy with 3-D human anatomy laboratories.
- Advanced study of physiology, pathology and pathophysiology concepts of disease.
- Study of the epidemiology and etiology of disease states.
- Eliciting, performing and documenting the medical history and physical exam.
- Selecting, interpreting and applying appropriate laboratory, imaging and other diagnostic tests.
- Advanced study of disease states including the development of a differential diagnosis, most likely diagnosis and prognosis of disease.
- Developing patient management skills related to the principles of pharmacology as they pertain to prescription and non-prescription therapeutic agents.
- Study of the behavioral health aspects of wellness and disease.
- Study of preventive health care, patient-centered healthcare, patient-centered education and health maintenance.
- Study of the clinical presentation of disease states across the life span.
- Identification and treatment of clinical emergencies.
- Study of current evidence-based healthcare principles.

The didactic foundation courses include the basic medical sciences, principles of genetics, and immunology. The courses are designed to prepare students for the advanced study of clinical medicine.

The didactic interprofessional education courses are collaborative courses that instruct students across the colleges about the principles of interprofessional practice and allow students to practice interprofessional teamwork and communication skills in a classroom and small group setting.

The didactic professional courses are designed to provide students with instruction in evidence based practice to include critical review of the medical literature; advanced study of the PA profession, medical ethics, public and population health, and employment issues.

## COURSES

### **PAS 400: IPE Medical Spanish. (2 units)**

This interprofessional team-taught course is designed to develop and/or improve students' communication in clinical situations with patients whose native language is Spanish. The focus of the instruction will be on learning basic conversation skills in order to elicit clinical histories, conduct an examination, and give oral instructions to Spanish speaking patients. Students will also be exposed to pertinent information about Latino culture as it pertains to medical care. Students will participate in language tasks through listening and speaking.

### **PAS 401: IPE Medical Ethics. (1.5 units)**

This interprofessional team-taught course introduces ethical theory and presents case studies that are commonplace in clinical professional practice. The lecture sequence that includes scope of practice, ethical theories, state regulations and clinical examples is supplemented with student led group discussions of case studies using a problem-based learning format. Students examine and address issues by applying ethical theory and values to resolving situations that challenge practitioners. Ethical issues dealing with confidentiality, professional referrals, advertising, record keeping, informed consent and conflicts of interest are presented in class and discussion groups.

### **PAS 403: IPE Population and Public Health. (2 units)**

This interprofessional team-taught course is designed to develop a foundational understanding of Public Health and its core functions of assessment, policy development and assurance. In addition the aim is to develop patient communication and educational skills for a culturally diverse patient population to address concepts of health promotion and disease prevention. Evidence-based recommendations for health promotion and disease prevention will be emphasized. Lectures, group activities, workshops, and simulations will be used to discuss and apply the concepts of disease prevention and health promotion.

### **PAS 404: IPE Interprofessional Case Conferences. (0.75 unit)**

This interprofessional team-taught course introduces interprofessional collaboration, communication and teamwork through small group discussion of clinical cases that are well suited for all the health professions. Students will examine the clinical cases from their professional perspective and will learn from other health professions students about their professional roles and responsibilities within the context of the case studies. The course is facilitated by an interprofessional team of faculty members who will guide the small group discussions.

### **PAS524: Fundamentals of Anatomy. (2 units)**

This course is designed to provide an introduction of anatomy within a clinical context to assist in developing spatial relationship skills with an emphasis on important anatomical landmarks relevant to physical exam, diagnosis and development of disease, and in the anatomical relationships of structures to each other. The PA student will learn the skills needed to recognize normal anatomy, normal anatomical variation and disease states. Lectures, 3-D anatomy tables, and a multimedia approach will be used to present the material.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

### **PAS525: Applied Medical Science. (6 units)**

This course is designed to develop an understanding of physiology, pathology and pathophysiology concepts of disease as they pertain to each organ system. Lectures, case studies and a multimedia approach will be used to present the material.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

### **PAS526: Infectious Disease & Immunology. (4 units)**

This course is designed to introduce students to the concepts of medical immunology and the principles of infectious diseases. After reviewing epidemiology, virulence and pathogenicity of selected organisms, pathophysiology, clinical presentation and general management of infectious disease states will be explored through lecture and case studies.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

### **PAS527: Medical Genetics. (2 units)**

This course is designed to develop an understanding of the genetic concepts of disease as they pertain to each organ system. Lectures and a multimedia approach will be used to present the material.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS528: Clinical History. (2 units)**

This course is designed to develop the knowledge and skills required to elicit, perform and document the complete medical history and physical exam with use of appropriate equipment, proper exam techniques and accurate medical terminology. The course will provide an overview of the medical record as well as development of writing and oral presentation skills. History-taking, physical examination and documentation skills will be developed through lecture and structured small group laboratory exercises.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS529: Dermatology. (4 units)**

In-depth and integrated knowledge about dermatologic disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS530: Eye, ENT. (4 units)**

In-depth and integrated knowledge about ophthalmic and otorhinolaryngology disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS531: Evidence-Based Practice. (4 units)**

This course will focus on evidence-based practice methodology, to include the necessary skills to search and critically analyze the medical literature. Students will learn to analyze and interpret various types of clinical articles to develop proficiency in utilizing current, evidence based medicine to answer clinical questions relative to diagnosis and therapy. Instruction for this course will consist of lectures, structured faculty-led small group journal clubs and review sessions.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS532: Pulmonology. (4 units)**

In-depth and integrated knowledge about pulmonary disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS533: Cardiology. (6 units)**

In-depth and integrated knowledge about cardiac disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS534: Hematology. (4 units)**

In-depth and integrated knowledge about hematologic disease and oncologic processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS535: Nephrology. (4 units)**

In-depth and integrated knowledge about kidney disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS536: Endocrinology. (4 units)**

In-depth and integrated knowledge about diabetes and other endocrinologic disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS537: Men's Health. (2 units)**

In-depth and integrated knowledge about men's health and disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS538: Gastroenterology. (4 units)**

In-depth and integrated knowledge about gastroenterological disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS539: Orthopedics & Rheumatology. (6 units)**

In-depth and integrated knowledge about orthopedic and rheumatologic disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS540: Neurology. (6 units)**

In-depth and integrated knowledge about neurologic disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS541: Behavioral Health. (2 units)**

In-depth and integrated knowledge about behavioral health and disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS542: Women's Health. (6 units)**

In-depth and integrated knowledge about women's health and disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS543: Pediatrics. (4 units)**

In-depth and integrated knowledge about pediatric health and disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS544: Emergency Medicine. (6 units)**

In-depth and integrated knowledge about emergency medical conditions common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS545: Surgery. (4 units)**

In-depth and integrated knowledge about surgical conditions common to primary care practices. Instruction for this course will consist of knowledge about surgical principles as well as management of surgical patients.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS546: Hospital Medicine. (4 units)**

In-depth and integrated knowledge about the hospital management of conditions common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS547: Geriatrics. (2 units)**

In-depth and integrated knowledge about geriatric health and disease processes common to primary care practices. Instruction for this course will consist of lectures, case studies, problem-based learning, hands-on laboratory and practice sessions, as well as small group workshops.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS550: Introduction to the PA Profession. (2 units)**

This is a self-study course designed to prepare students for matriculation. Students examine the role of the PA in the context of the healthcare system, as well as issues pertaining to the PAs' practice of medicine. This course also includes a historical review of the PA profession and PA organizations. Students also take a medical terminology course during this time.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

**PAS 610 Graduate Seminar I (2 units)**

This seminar occurs during the clinical phase and focuses on specific requirements for entering professional clinical practice. Professional practice issues will address PA Scope of Practice in California, laws and licensure regulation, preparing for, acquiring and maintaining national certification, patient risk management, medical-legal issues and medical malpractice. Through guided discussion in lecture and small seminar settings, students explore and discuss requirements and competencies for the PA profession. The student is evaluated with (1) a formative comprehensive written examination, (2) a formative application of clinical knowledge and skills examination in the form of an Objective Structured Clinical Examination (OSCE).

*Prerequisites: Completion of the preclinical phase of the School of Physician Assistant Studies or program permission.*

**PAS 611 Graduate Seminar II (2 units)**

This seminar occurs during the clinical phase and focuses on professional practice issues, as well as ensures students have met all the requisite knowledge and professional criteria for graduation. Students undergo a Summative Evaluation during this time to ensure they not only have acquired broad and specific clinical knowledge, but that they are able to apply these skills into the needed competencies for PA clinical practice. The student is evaluated with (1) a comprehensive written examination, (2) an application of clinical knowledge and skills examination in the form of an Objective Structured Clinical Examination (OSCE).

*Prerequisites: Completion of the preclinical phase of the School of Physician Assistant Studies or program permission.*

**PAS 612 Clinical Preparatory (6 units)**

This three-week clinical course provides the PA student with a comprehensive review of the didactic phase of training. Students engage in a number of activities designed to enhance their current clinical skills and didactic knowledge prior to beginning their clinical rotations.

*Prerequisites: Completion of the preclinical phase of the School of Physician Assistant Studies or program permission.*

**PAS 551, 609, 613 Masters Capstone Project I, II, III (9 units)**

This entails three courses spread across multiple quarters. Each course focuses on a particular area of the Masters Capstone Project, to allow the PA student to complete their required project under the guidance of a faculty advisor. In teams of three or four, students will identify a population healthcare need and develop and implement a project to mitigate the identified need. Students will use evidence-based principles to research the medical issue related to their community project. The student teams will prepare and present a professional poster on their topic prior to graduation.

*Prerequisites: Admission to the School of Physician Assistant Studies.*

The clinical phase of the PA curriculum focuses on direct patient care that offers students a vast array of clinical opportunities with diverse and challenging patient encounters. Prior to beginning their clinical rotations, students engage in a comprehensive review of the entire first phase of training, designed to enhance their clinical exam skills and didactic knowledge. During their clinical rotations, students train with board certified providers, across a number of different specialty areas, each averaging six weeks in length. Students are exposed to acute and chronic patient care needs across the lifespan in a variety of health care settings (i.e. emergency room, outpatient and inpatient settings, operating rooms, and long term care facilities). In order to graduate, students must successfully complete all clinical rotations, the Master's Capstone Project and Graduate Seminars, as well as Summative Examinations.

**PAS 670 Medical Clinical Services I (6 units)**

**PAS 671 Medical Clinical Services II (6 units)**

**PAS 672 Medical Clinical Services III (6 units)**

**PAS 673 Medical Clinical Services IV (6 units)**

**PAS 674 Medical Clinical Services V (6 units)**

**PAS 675 Medical Clinical Services VI (6 units)**

**PAS 676 Medical Clinical Services VII (6 units)**

**PAS 677 Medical Clinical Services VIII (6 units)**

*Prerequisites: Completion of the preclinical phase of the School of Physician Assistant Studies or program permission.*

## **The Medical Clinical Services courses will include experiences in the following:**

### **Behavioral Health**

This clinical course will provide the PA student with a behavioral medicine experience in caring for ambulatory and/or hospitalized patients with behavioral and mental health conditions. The student will perform basic psychiatric evaluations, monitor medications and support the clinical management plan for patients. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Clinical Rotation Elective**

This clinical course is selected by the student from a variety of surgical or medicine specialties, or subspecialties, such as Oncology, Endocrinology, Occupational Medicine, Hospitalist Medicine, etc. The student will be able to recognize conditions treated by these specialties and become aware of medical or surgical indications requiring referral to specialty care. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Emergency Medicine**

This clinical course provides the PA student with experience in triage, evaluation and management of patients in the emergency department setting. The student will have the opportunity to learn skills necessary for appropriate triage, stabilization, evaluation, diagnosis and management of patients with traumatic injuries and acute medical and surgical illnesses, as well as management of lower acuity health disorders. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **General Surgery**

This clinical course will provide the PA student with experience in the evaluation and management of surgical patients in the pre-operative, intra-operative and post-operative environments. The PA student will evaluate and participate directly in the care of surgical patients before, during and after their procedures. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Pediatrics**

This clinical course will provide the PA student with experience in outpatient and/or in-patient management of pediatric patients. The student will have the opportunity to perform well baby and child exams, problem-oriented exams, evaluate common pediatric illnesses and experience care of newborns, children and adolescents. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Family Medicine**

This clinical course provides the PA student with experience in outpatient evaluation of pediatric and adult patients, including preventive medicine and acute and chronic illness. The Family Medicine and Primary Care clinical rotations may be done at the same clinical site. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Primary Care**

This clinical course provides the PA student with experience in outpatient evaluation of primary care conditions, including preventive medicine and acute and chronic illness. The Family Medicine and Primary Care clinical rotations may be done at the same clinical site. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.

### **Women's Health**

This clinical course provides the PA student with experience in managing common gynecologic care and the maintenance of gynecologic health. Obstetric experience will include routine prenatal care. Students will gain experience in proper and professional communication with patients, patient families, physicians and an interdisciplinary team of healthcare professionals.



# **COLLEGE OF PHARMACY**

## **DOCTOR OF PHARMACY**

### **VISION STATEMENT**

The College of Pharmacy at Marshall B. Ketchum University will be a recognized innovator and provider of distinctive, highest quality, evidence-based education, research, and collaborative pharmacy practice.

### **MISSION**

The mission of MBKU COP is to educate individuals to become ethical and compassionate pharmacists who competently deliver patient-centric services in diverse environments and systems of healthcare, with a commitment to innovative scholarship.

### **PROGRAM OVERVIEW**

It takes four academic years to complete the Doctor of Pharmacy program . The first year curriculum provides the foundation for professional practice with instruction on pharmaceutical and biomedical sciences, body systems and disease, epidemiology, public health, pharmaceutical self-care, pharmacy law and roles of the pharmacist. The curriculum teaches United States and global health care systems, interpersonal and interprofessional communications, pre-clinical laboratory skills, pharmacy practice skills and provides certifications in immunization and life support. Students will begin Introductory Pharmacy Practice Experiences courses (IPPE).

The second year curriculum continues to build on the foundation courses from year one with instruction on applied biomedical sciences, pharmacology, clinical medicine and pharmacotherapeutics. The curriculum teaches professional ethics, behavioral aspects of health, drug information, evidence-based practice, research methodology, biostatistics, pharmacokinetics and basics of laboratory medicine. Students continue with IPPE courses.

The third year curriculum continues with focused instruction on the principles of clinical medicine and pharmacotherapeutics. The curriculum incorporates biotechnology, pharmacogenomics, pharmacoeconomics, special populations and contains a skills lab for clinical and evidence-based reasoning and certification in medication therapy management. The curriculum includes a doctoral level capstone project and provides students an opportunity to take three didactic electives of their choice.

The fourth year, also known as the experiential year curriculum lists all the Advanced Pharmacy Practice Experience courses. Students will also take APPE electives of their choice. The Case Conferences will consist of reflection sessions that discuss pertinent clinical areas through case studies and will provide a North American Pharmacist Licensure Examination (NAPLEX) preparatory course to assess NAPLEX readiness.

The degree of Doctor of Pharmacy will be conferred on students who are officially admitted to, and who satisfactorily complete the four-year professional curriculum in pharmacy. Satisfactory completion of the Doctor of Pharmacy program will academically qualify the graduate to apply for licensure in each of the 50 states.

### **ADMISSIONS**

The College of Pharmacy is committed to accepting a diverse group of qualified individuals from a variety of backgrounds and experiences in accordance with MBKU's nondiscrimination policy.

## Criteria

The COP has an ethical responsibility for the safety of patients and to graduate candidates for pharmacy licensure who are competent and capable to meet the essential functions of pharmacy practice. The technical standards established by the college faculty require students to master the physical, cognitive and behavioral capabilities for successful admission, promotion and graduation. The Accreditation Council for Pharmacy Education requires U.S. colleges and schools of pharmacy to define the technical standards.

All students are held to the same academic and technical standards, with or without reasonable accommodation, to complete all aspects of the professional education program. Disclosure of disabilities is not required; however, students who fail to comply with the standards and do not seek accommodation are in jeopardy of academic failure and possible dismissal. The college encourages consultation with the assistant dean of student affairs if a student feels the standards cannot be met. Students must be able to accomplish all of the following:

### Observation

- Observe lectures, demonstrations, experiments and practice-based activities in the basic and pharmaceutical sciences.
- Observe physiologic and pharmacological demonstrations, evaluation of microbiological cultures and microscopic studies of organisms and tissues and in normal and pathological states.
- Observe a patient accurately at a distance and close at hand, noting verbal and nonverbal signals.
- Meet the specific vision-related requirements, such as read information on a computer screen, projected slides and overheads, read written and illustrated material and discriminate numbers and patterns associated with diagnostic and monitoring instruments and tests.
- Evaluate visible patient signs and symptoms for the purposes of monitoring drug therapy.

### Communication

- Communicate effectively, sensitively and rapidly with patients and members of the health care team and convey a sense of compassion and empathy.
- Speak, listen, read and write in the English language.
- Effectively communicate with instructors and peers.
- Communicate with health care practitioners specifically in reviewing and recommending verbal and written drug therapy orders.
- Elicit information from patients, describe changes in mood, activity and posture and perceive nonverbal communications.
- Read and record observations and care plans legibly, efficiently and accurately.
- Complete forms or appropriately document activities according to directions in a complete and timely fashion.

### Sensory and motor coordination or function

- Execute all aspects of processing multiple types of drug orders and compounding of medications.
- Engage in safe and aseptic handling of sterile preparations.
- Safely and effectively operate appropriate equipment, including but not limited to microscopes, computer keyboards, glucose monitors and peak flow meters.
- Execute motor movements reasonably required to participate in the general care and emergency treatment of patients.

## **Intellectual, conceptual, integrative and quantitative abilities**

- Comprehend three-dimensional relationships and to understand the spatial relationships of structures.
- Solve problems involving measurement, memorization, calculation, reasoning, analysis, synthesis and evaluation rapidly in a multi-task setting.
- Synthesize knowledge and integrate the relevant aspects of a patient's history, physical findings and monitoring studies.
- Obtain retrieve, evaluate and deliver information in an efficient and timely manner.
- Provide a reasonable explanation and analysis of the problem and determine when additional information is required.

## **Behavioral and social attributes**

- Possess the emotional health required for full use of their intellectual abilities, the exercise of good judgment and the prompt and safe completion of all responsibilities.
- Adapt to change, to display flexibility and to learn to function in the face of uncertainties and stressful situations.
- Possess compassion, integrity, interpersonal skills, motivation, empathy, respect and concern for others.
- Comprehend the legal and ethical aspects of the practice of pharmacy and function within the guidelines established by the law and by the ethical standards of the pharmacy profession.
- Function effectively in situations of physical and emotional stress.
- Accept appropriate suggestions and criticism and, if necessary, respond by modification.
- Exercise good judgment and prompt completion of all responsibilities involved in the pharmaceutical care of patients in a sensitive and effective manner.
- Have the capacity to develop professional, mature, sensitive and effective relationships with patients.
- Develop the skills necessary to instruct and supervise technical personnel assisting with the delivery of pharmaceutical services.

It is our experience that a number of individuals with disabilities, as defined by Section 504 of the Rehabilitation Act and the Americans with Disabilities Act, are qualified to study and work as health care professionals and scientists with the use of reasonable accommodations. To be qualified for health sciences programs at MBKU those individuals must be able to meet both our academic standards and the technical standards, with or without reasonable accommodations.

For further information regarding services and resources for students with disabilities and/or to request accommodations, please contact the Office for Student Affairs.

## Prerequisites

All requirements must be completed by the time of matriculation at MBKU.

A baccalaureate degree from a regionally accredited college or university, or an equivalent institution as determined by MBKU, is recommended for admission.

All prerequisite courses must be completed at a regionally accredited institution in the U.S. with a grade of “C” or better. Applicants educated outside the U.S. must utilize a transcript evaluation service to verify their degree and course work. The academic record must show credits and grades equivalent to those given by U.S. institutions of higher learning.

The following courses must be completed at a regionally accredited institution, in the U.S., with a grade of “C” or better prior to enrollment and are the minimum requirements for all applicants.

6 semester or 9 quarter units of each of the following:

- General Biology (One year sequence, including laboratories)
- General Chemistry (One year sequence, including laboratories)
- Organic Chemistry (One year sequence, including laboratories)

3 semester or 4 quarter units of each of the following:

- General or Medical Microbiology (Laboratory required)
- Human Anatomy (Laboratory required)
- Human Physiology (Laboratory required)
- Calculus (For science majors preferred)
- General Psychology
- Economics
- Behavioral or social science course
- Communication course

Additionally, 6 semester units or 8 quarter units

- English\*
- Waived for students with a verified BA degree

Advanced Placement credits will be accepted for fulfillment of no more than the equivalent of one non-science course of the prerequisite.

The Pharmacy College Admission Test (PCAT) is not required for students with a bachelor's degree. Additional consideration will be given to those with community service, patient care, pharmacy and/or military experience.

Applicants who have not earned a baccalaureate degree from a regionally-accredited institution must also submit official scores from the Test of English as a Foreign Language, or TOEFL, regardless of the official language of the country in which the education took place or the predominant language of the degree-granting institution. Scores should be sent directly using MBKU Code 4893. Minimum scores are noted below:

Reading 22/30

Listening 22/30

Speaking 26/30

Writing 24/30

## Procedures

All first time applicants, reapplicants and those who have been previously enrolled in another pharmacy program must apply through the centralized application service: PharmCAS. Applicants must follow the instructions on how to complete the application, submit transcripts and submit letters of recommendation. All supplemental application materials will be completed on-campus during the applicant interview day.

The Pharmacy College Admission Test (PCAT) is not required, but a high score could enhance an applicant's chances of admission. If you wish to make available your PCAT scores, please select MBKU as a recipient at the time the exam is taken.

## Process

The PharmCAS application cycle begins in July. Applicants must submit application and college transcripts to PharmCAS by the final application deadline.

Applications are processed as soon as they are verified by PharmCAS. Candidates will be invited to campus for interviews between Fall and Spring quarters.

## FINANCIAL INFORMATION

### Tuition

#### 2018-2019 Tuition, PharmD program

	Summer Quarter	Fall Quarter	Winter Quarter	Spring Quarter	Total
1st/2nd year tuition	-0-	\$16,478	\$16,476	\$16,476	\$49,430
Matriculation credit (1st-yr.)	-0-	-1,500	-0-	-0-	-1,500
Net tuition: 1st-yr.	-0-	\$14,978	\$16,476	\$16,476	\$47,930
Net tuition: 2nd-yr.	\$12,359	\$12,357	\$12,357	\$12,357	\$49,430
Net tuition: 3rd-yr.	\$11,425	\$11,425	\$11,425	\$11,425	\$45,700

#### Tuition for returning students enrolled less than full time

Tuition (less than full time) per unit . . . . .	\$966/\$1,045
Audit per unit . . . . .	\$100

### Fees

Annual Student Association fee . . . . .	\$115
Class account fee . . . . .	\$.45
Graduation fee (only charged to P4 students) . . . . .	\$150
Parking fee per quarter (optional) . . . . .	\$.60

## Other costs

Matriculation deposit / PharmD program (paid upon acceptance and credited to Fall Quarter tuition upon enrollment) . . . . \$1,500

Estimates for books, instruments, equipment, supplies and clinic uniforms for all four professional years are listed below.

Equipment. . . . . \$300

Books. . . . . \$750

While the occasion has not previously presented itself, the Board of Trustees of Marshall B. Ketchum University does reserve the right to change the tuition and fees or to establish additional fees for special features or services if deemed necessary.

## DIDACTIC YEARS (P1-P3)

### COURSES

#### **PHM 401: IPE Medical Ethics (1 + 0.5 lab unit) (IPE)**

This interprofessional team-taught course introduces ethical theory and presents case studies that are commonplace in clinical professional practice. The lecture sequence that includes scope of practice, ethical theories, state regulations and clinical examples is supplemented with student led discussions on case studies using an interactive learning format. Students examine and address issues by applying ethical theory and values to resolving situations that challenge practitioners. Ethical issues dealing with confidentiality, professional referrals, advertising, record keeping, informed consent, medical mistakes and conflicts of interest are presented in class and discussion groups.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

#### **PHM 403: IPE Population and Public Health (2 units) (IPE)**

This team-taught interprofessional course is designed to develop a foundational understanding of population and public health and its core functions of assessment, policy development and assurance. This course exposes the student to current trends in the U.S. healthcare system, including healthcare delivery systems and policy, healthcare information systems and healthcare outcomes. In addition the aim is to develop patient communication and educational skills for a culturally diverse patient population to address concepts of health promotion and disease prevention. Evidence-based recommendations for health promotion and disease prevention will be emphasized. Lectures, group activities, workshops, and simulations will be used to discuss and apply the concepts of disease prevention and health promotion.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

#### **PHM 404: IPE Case Conferences (0.75 units) (IPE)**

This team-taught course introduces interprofessional collaboration, communication and teamwork through small group discussion of clinical cases that are well-suited for all the health professions. Students will examine the clinical cases from their professional perspective and will learn from other health professions students about their professional roles and responsibilities within the context of the case studies. The course is facilitated by an interprofessional team of faculty members who will guide the small group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

#### **PHM 402 Evidence-Based Practice (2 units) (IPE)**

The overall goal of this course is to prepare future medical professionals for life-long learning and to provide knowledge on interpreting scientific studies in their chosen profession. Principles of evidence-based medicine are presented to allow evaluation of literature and other media relative to diagnostic and treatment approaches in patient care. Included in the course material are fundamental concepts in sampling, study design, sample size and power estimates, bias, validity, confounding, hypothesis testing, and an overview of data types and statistical tests appropriate for clinical studies. Quantitative epidemiology approaches are presented such as incidence, prevalence, relative risk, and odds ratio to determine evaluation of patient risk and the efficacy of potential treatment approaches. The course will include material to enable citation and critique of peer-reviewed scientific literature, to assist future case report and scientific manuscript submissions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 501 Foundations of Human Body and Disease I (3 units)**

This foundational course is the first in a series designed to develop an understanding of anatomy, physiology, and pathophysiology concepts of disease as they pertain to each organ system. Students will learn to differentiate between normal physiologic variation and disease states. A blended approach (lecture, small group discussion, multimedia) is used for presentation of the material.

*Prerequisites: Admission to the professional Pharmacy program.*

### **PHM 502 Foundations of Human Body and Disease II (3 units)**

This foundational course is the second in a series designed to develop an understanding of anatomy, physiology, and pathophysiology concepts of disease as they pertain to each organ system. Students will learn to differentiate between normal physiologic variation and disease states. A blended approach (lecture, small group discussion, multimedia) is used for presentation of the material.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 503 Foundations of Human Body and Disease III (3 units)**

This foundational course is the third in a series designed to develop an understanding of anatomy, physiology, and pathophysiology concepts of disease as they pertain to each organ system. Students will learn to differentiate between normal physiologic variation and disease states. A blended approach (lecture, small group discussion, multimedia) is used for presentation of the material.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 504, 505, 506 Patient Assessment Lab I, II, & III (0.5; 0.5; 1.0 lab units, respectively)**

This foundational course is designed to introduce the art of physical examination as a bridge between anatomy, pathology and pathophysiology concepts with future therapeutic decision making. Students will be familiarized with the process of information gathering of symptoms, signs, nonverbal communication skills, medical history, verbal techniques of communication and empathy. Basic techniques on how to conduct a physical exam from head to toe and the use of the stethoscope, otoscope, and sphygmomanometer will be introduced. Several teaching strategies are used throughout the course such as lectures, multimedia, videos, group discussions and practice, and OSCE which will help to develop the necessary skills to master the subjects.

*Prerequisites: Admission to the professional Pharmacy program (for PHM 504) and successful completion of prior quarter coursework or program permission (for PHM 505 and 506).*

### **PHM 510 Integrated Microbiology and Virology (3 units)**

This foundational course is designed to introduce the fundamental concepts of microbiology encompassing disease-causing bacteria, viruses, fungi and parasites. Emphasis will also be on understanding host-pathogen interactions in causing human disease, etiology of disease, infection cycle, disease transmission and diagnostic processes. The course will also highlight upon host immune defense mechanisms, pharmaceutical intervention of microbial infections and resistance to such interventions. Microbial infections by organ system will be discussed and integrated with principles of clinical presentation, prevention and general management through lecture and case studies.

*Prerequisites: Admission to the professional Pharmacy program*

### **PHM 511 Integrated Immunology (3 units)**

This foundational course is designed to introduce the fundamental concepts of immunology encompassing elements of immune system, antigen processing and antibody generation. Emphasis will be on development of T- and B-lymphocytes, T- and B-cell mediated immunity, host defense mechanisms in response to immediate and induced infections, and their prevention. The course will also highlight upon adaptive immunity, immunological memory, vaccination, autoimmunity and transplantation. Pathological consequences of immunodeficiency and/or autoimmunity will be discussed and integrated with principles of clinical presentation and management.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 520 Pharmaceutical Sciences I: Physical Pharmacy and Dosage Forms (3 units)**

This foundational course is the first in a series designed to develop an understanding of the science behind drug dosage forms, delivery and preparation. Materials covered include the selected properties of drug substances that have an impact on the delivery of drugs to the human body, the dosage forms available for drug administration, and the therapeutic effect with respect to physical and chemical properties of drug in solution dispersion and solid state. The course also focuses on the theory, technology, formulation, evaluation and dispensing of dosage forms and delivery systems.

*Prerequisites: Admission to the professional Pharmacy program.*

### **PHM 521 Pharmaceutical Sciences II: Calculations (2 units + 1.5 recitation units)**

This course is designed to emphasize mathematical concepts used in the practice of pharmacy for preparing and dispensing medications to a diverse patient population. Student pharmacists will use critical thinking and quantitative reasoning skills to compute the correct dose for a drug for both non-sterile and parenteral formulations. Student pharmacists will also explore patient specific parameters that influence the dosing regimen.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 522 Pharmaceutical Sciences III: Dosage Forms, Delivery Systems, and Compounding Laboratory (2 units + 2 lab units)**

This foundational course is the third in a series designed to develop an understanding of the science behind drug dosage forms, delivery and compounding preparation. Materials covered include the selected properties of drug substances that have an impact on the delivery of drugs to the human body, the dosage forms available for drug administration, and the therapeutic effect with respect to physical and chemical properties of drug in solution. This course includes compounding laboratory component to enhance development of knowledge and skills.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 523 Basic Pharmacokinetics (3 units + .5 lab units)**

Pharmacokinetics is the study of drug movement in the body, sometimes defined as what the body does to a drug. This course is designed to introduce the basic principles and concepts of pharmacokinetics such as drug absorption, distribution, metabolism and excretion, as well as pharmacokinetic parameters including rate constant, half-life, steady state concentration, clearance, and volume distribution. Factors that influence the pharmacokinetics of drugs including formulation, physicochemical properties, physiological and pathological conditions are discussed. Students learn to use mathematical equations to describe the pharmacokinetic process of drugs, and apply them to dosage regimen determinations. This course will also discuss the correlation of pharmacokinetics and pharmacodynamics which presents the effects of drug action at the receptor site. Upon successful completion of this course, students are expected to make rational drug therapy decisions such as determination of loading dose, maintenance dose and dosing intervals. The course prepares the student for Clinical Pharmacokinetics.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 530 Pharmaceutical Biochemistry (3 units)**

Basic biochemistry as it relates to organ systems, disease and pharmacotherapy is presented and reviewed. This includes the principles of the thermodynamics, kinetics, structure, and regulation of biochemically significant molecules and their building blocks. Biochemical constructs (such as energy production, enzymes, membranes, DNA, RNA, proteins, anabolic and catabolic pathways, etc.) are discussed with respect to pharmaceutical treatment of human disease.

*Prerequisites: Admission to the professional Pharmacy program.*

### **PHM 540 Professional Practice and Healthcare Systems (2 units)**

This course is designed to familiarize students with healthcare systems with emphasis on contemporary healthcare issues and pharmacy practice in the United States and services within various medication use systems. The scope of practice and role of the pharmacist in various health settings, historical development of pharmaceutical practice and care, workforce issues, and the economic aspects of pharmacy practice will be discussed. Other topics to be discussed include credentialing, federal and private health insurance, provider privileges, fee-for-service, value-based performance, medication-patient safety and medication therapy management.

*Prerequisites: Admission to the professional Pharmacy program*

### **PHM 541 Pharmacy Communications: Management and Leadership (2 units)**

The course delineates communication skills for delivery and advocacy of pharmaceutical care, along with principles of management, leadership, teamwork, entrepreneurship, and personal / professional growth. Students will be introduced to the concepts and principles of interpersonal and professional communication required to optimize patient care needs and professional development. Other topics include leadership styles, consensus building, assessments of personal skills / talents (e.g., strength-based assessment), and identification of strategies for personal and professional, life-long learning, and effective problem solving (e.g., thinking habits).

*Prerequisites: Successful completion of prior quarter coursework or program permission.*



### **PHM 550 Pharmacy Skills Lab I- Community (1 lab unit)**

This course introduces students to the basic activities and skills for community pharmaceutical practice and care. Students will integrate foundational knowledge and skills learned in pharmaceutical and biomedical sciences. Students will learn and practice basic skills utilized in community medication use systems such as prescription fulfillment (e.g., receipt, preparation, labeling, dispensing, and distribution), pharmacy workflow and inventory management, use of pharmacy software, pharmacy abbreviations, pharmacy sig, therapeutic interchange, medication security with controlled substances, allergies, side effects, medication safety, and checking the work of technicians. Students will understand the importance of patient-customer service.

*Prerequisites: Admission to the professional Pharmacy program*

### **PHM 551 Pharmacy Skills Lab II- Community (1 lab unit)**

This course is a continuation of the Pharmacy Skills Lab series with a focus on community pharmacy practice. Students will integrate foundational knowledge and skills learned in pharmaceutical and biomedical sciences. Students will learn and practice basic skills utilized in community medication use systems such as prescription fulfillment (e.g., receipt, preparation, labeling, dispensing, distribution), use of pharmacy software and automation equipment, and medication errors and safety. Students will also complete training and obtain American Pharmacists Association (APhA) certification in pharmacy-based vaccine immunization delivery and travel health services.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 552 Pharmacy Skills Lab III- Hospital (1 lab unit)**

This course introduces students to the basic activities and skills for hospital pharmaceutical practice and care. Students will integrate foundational knowledge with skills learned in pharmaceutical and biomedical sciences. Students will learn and practice basic skills utilized in hospital medication use systems such as medication order fulfillment (e.g., preparation, dispensing, distribution), use of Electronic Health Records (EHR) and automation equipment, identification and prevention of medication errors, sterile compounding, and aseptic technique.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 560 Pharmacy Law (2 units)**

This course provides an overview of current state and federal laws that substantially impact the competent delivery of Pharmacy care and services in community, interprofessional, ambulatory/clinic, inpatient, administrative, and other key practice settings. Standards, guidelines, rules, requirements, practices, and policies relating to maintaining/improving patient safety and consumer protection are also provided. The laws and professional practice standards of the state of California are emphasized.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 580 Pharmaceutical Self Care and Patient Advocacy I (2 units)**

This course covers principles of pharmaceutical self-care and the systematic approach for assisting patients who seek self-care products for treatment and prevention of headache, fever, musculoskeletal injuries and disorders, pain, respiratory, and gastrointestinal disorders. Other topics covered include insect bites and stings, pediculosis and first-aid. Student pharmacists will learn principles to assist, educate, and empower patients to take responsibility for, and control of their health. The body systems covered will integrate prior knowledge gained from the Foundations of Human Body and Disease course series and the Patient Assessment Lab courses.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 581 Medical Spanish (1 unit)**

Effective communication is critical in delivering effective healthcare, and communication is most effective when both parties share a common language. This course will teach students the basics of Spanish as it applies to the medical field such as physical examinations, emergencies, common diseases within the Latino population, and specializations. By familiarizing students with conversational Spanish and medical Spanish, this course will enable students to apply their learning to real-world situations, to assist in communications, and ultimately to break down the barrier between healthcare providers and patients. By the end of the quarter students should be able to communicate in simple Spanish using mainly the present tense, past regular tenses and phrasal verbs to express future intentions. They should be able to utilize specific medical terms learned in class. Students should be able to communicate with Spanish speaking patients by asking personal questions as well as questions about their health. They should be able to sustain a conversation about a specific medical problem as presented by a native speaker of Spanish in simple terms. They should be able to give advice and recommendations to the problem using short sentences. Students should be able to read and comprehend the essence of a medical history or specific medical case in Spanish. They should be able to write professional comments on the medical interview performed using basic statements constructed with learned grammatical structures and vocabulary.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 601 Integrated Pharmacotherapeutics I (5 units)**

This course sequence is a comprehensive presentation of pharmacotherapy integrated with pharmacology, medicinal chemistry, and clinical pharmacokinetics concepts. The first course in the sequence provides principles of pharmacology, medicinal chemistry, and clinical pharmacokinetics as related to the pharmaceutical sciences and foundations of pharmacotherapy. Drug receptors, signal transduction, ligand-molecular target interactions, drug discovery and development, functional groups and stereochemistry, acid-base chemistry, ADME/Tox properties, biotransformation, therapeutic drug monitoring, and pharmacokinetic drug interactions will be covered in this course. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 602 Integrated Pharmacotherapeutics II (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with an introduction to laboratory values and the clinical reasoning (SOAP) format followed by a focus on the renal system, fluid / electrolytes, and obesity. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 603 Integrated Pharmacotherapeutics III (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the gastrointestinal, hepatic, nutrition support, and cardiovascular systems. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 604 Integrated Pharmacotherapeutics IV (6 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the cardiovascular and endocrine systems. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 605 Integrated Pharmacotherapeutics V (6 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the endocrine and pulmonary systems. Within the endocrine system, diabetes will be broadly discussed. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 606 Integrated Pharmacotherapeutics VI (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the musculoskeletal system as well as women's and men's health. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 610 Drug Information, Informatics and Literature Evaluation (2 units)**

This course will provide a systematic approach to drug information and literature evaluation to formulate and implement appropriate drug therapy decisions. This includes effective searching, retrieval, evaluation and dissemination of electronic and print resources. Students will utilize skills learned in this course to effectively communicate and tailor drug information at the appropriate level for providers, other health professionals, caregivers, patients and the public. Emphasis will be placed on the interpretation and application of critical analytical skills to clinical questions. Additionally, this course will provide introductory knowledge on the state-of-the-art in pharmacy informatics and decision support systems needed to implement patient-centered care. Students will be able to define basic terminology used in health informatics and describe the health benefits and current constraints in using information and communication technology in health care. Practical exercises will provide the student with hands-on experience using numerous drug information sources and evaluation techniques.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 621 Behavioral and Social Science (2 units)**

This course will examine how social and behavioral determinates of health may influence individual and group differences in health status. The course will also explore a range of social, ethical, and cultural factors associated with professional practice. This course facilitates the development of greater behavioral and cultural sensitivity that students must acquire to provide pharmaceutical care to patients from diverse populations.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 640 Pharmacy Skills Lab IV - Patient Care Process (1 lab unit)**

This course centers on utilization of tele-health and laboratory medicine in clinical and pharmaceutical care. The laboratory time is coordinated with initiation of the Clinical Medicine and Pharmacotherapeutics series. Students will be introduced to fundamental laboratory biological tissue testing with emphasis placed on general interpretation of laboratory data, systematic use of laboratory tests in the evaluation and management of common and important clinical conditions and the application of laboratory test results to clinical and pharmaceutical care. Additionally, students have the opportunity to learn and practice basic skills utilized in delivery of contemporary tele-health, drug therapy monitoring, and point-of-care testing.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 641 Pharmacy Skills Lab V - Cardiovascular (1 lab unit)**

This course allows students to gain additional practice with clinical reasoning, creating a SOAP plan, chart noting, developing patient-care plans and practicing presentation skills that are vital for advanced pharmacy practice experiences. Students begin to evaluate and apply evidence based medical literature to clinical practice.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 650 Pharmaceutical Self Care and Patient Advocacy II (2 units)**

This course covers principles of pharmaceutical self-care and the systematic approach for assisting patients who seek self-care products for treatment and prevention of ophthalmic, otic, oral, and vaginal/vulvovaginal disorders, disorders related to menstruation; as well as for the prevention of pregnancy and sexually transmitted infections. Furthermore, essential and conditionally essential nutrients; functional and meal replacement foods; sports nutrition and performance-enhancing nutrients and supplements; infant nutrition and special nutritional needs of children; dietary supplements; natural products; and common complementary and alternative medicine in self-care will also be covered. Students will learn principles to assist, educate, and empower patients to take responsibility for, and control of, their health. The body systems covered will integrate prior knowledge gained from the Foundations of Human Body and Disease course series and the Patient Assessment Lab courses..

*Prerequisites: Successful completion of prior quarter of pharmacy coursework or program permission.*

### **PHM 651 Pharmaceutical Self Care and Patient Advocacy III (2 units)**

This course covers principles of pharmaceutical self-care and the systematic approach for assisting patients who seek self-care products for treatment and management of select chronic diseases, insomnia, drowsiness, fatigue, and tobacco cessation. Additional topics such as overweight and obesity, fungal infections, ostomy care/supplies, and adult incontinence/supplies will be covered along with the continuation of gastrointestinal and dermatological conditions; and Medication Therapy Management (MTM). Students will learn principles to assist, educate, and empower patients to take responsibility for, and control of, their health. The body systems covered will integrate prior knowledge gained from the Foundations of Human Body and Disease and Patient Assessment Lab.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 670 Introductory Pharmacy Practice Experience (IPPE) I (4 units)**

This course provides introductory community pharmacy practice experience for student pharmacists of the College of Pharmacy. Under appropriate preceptor supervision and consistent with practice regulations for intern pharmacists, students will further develop, integrate, and apply knowledge from the first curriculum year. Student pharmacists will evaluate prescription and patient information, understand the basic steps for prescription data entry and processing, prescription preparation, actively observe elements of prescription consultations, and understand the basics of medication compliance and errors.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 701 Pharmacoeconomics (2 units)**

This course will discuss health economics with an emphasis on evaluating the cost and outcome effects of a pharmaceutical product from various perspectives. Several types of pharmacoeconomic analyses (e.g., cost minimization, cost-benefit, cost-effectiveness and cost-utility) will be introduced. Factors underlying the pricing of drugs (development, testing, licensing, manufacturing, marketing, etc.), and translation to healthcare costs. The macro/micro-economics of various aspects of pharmacy practice are discussed, including the impact of such pricing on hospital, retail, and other environments. Students will learn how to utilize pharmacoeconomic principles to guide optimal healthcare resource allocation, in a standardized and scientific manner.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

### **PHM 710 Integrated Pharmacotherapeutics VII (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the central nervous system and psychiatric disorders. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 711 Integrated Pharmacotherapeutics VIII (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on the neurological conditions. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

### **PHM 712 Integrated Pharmacotherapeutics IX (6 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on critical care and infectious diseases. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 713 Integrated Pharmacotherapeutics X (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on infectious diseases and solid organ transplant. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 714 Integrated Pharmacotherapeutics XI (6 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on oncology. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 715 Integrated Pharmacotherapeutics XII (5 units)**

Continuation of the Integrated Pharmacotherapeutics course series with a primary focus on special populations, miscellaneous topics as well as basic concepts in toxicology. This course is designed to develop knowledge and clinical reasoning skills required for provision of effective and safe patient-centered, pharmacotherapy care. Instruction consists of lecture, case studies, clinical problem sets, recitations, and structured faculty-led group discussions.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 730 Pharmacy Skills Lab VI- Clinical (1 lab units)**

This course focuses on continued development of skills learned in Pharmacy Skills Lab V with an emphasis on advanced and complicated case studies. Students continue to develop applied medical literature evaluation skills.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

**PHM 731 Pharmacy Skills Lab VII- Clinical (1 lab units)**

This course focuses on continued development of skills learned in Pharmacy Skills Lab VI with an emphasis on advanced and complicated case studies. Students continue to develop applied medical literature evaluation skills.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

**PHM 740 Biotechnology, Pharmacogenomics and Precision Medicine (3 units)**

Precision medicine or personalized medicine is the integration of established clinical–pathological indexes with state-of-the-art molecular profiling to create diagnostic, prognostic, and therapeutic strategies precisely tailored to an individual patient's requirements. This introductory course will discuss the scientific principles of biotechnology, molecular biology and pharmacogenomics pertaining to precision medicine. Topics include bioinformatics, gene therapy, genotyping, molecular biomarkers, nanotechnology, recombinant protein and monoclonal antibody therapeutics and targeted therapy.

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

**PHM 760 Special Populations - Pediatrics/Geriatrics (2 units)**

This course will address clinical medicine and pharmacotherapeutic concepts unique to the pediatric, geriatric population and women's health. Emphasis will be on physiology, disease states, pharmacokinetic and pharmacodynamic issues unique to these populations.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 770 Introductory Pharmacy Practice Experience (IPPE) II (4 units)**

This course provides introductory hospital pharmacy practice experience for students of the College of Pharmacy. Under appropriate preceptor supervision and consistent with practice regulations for intern pharmacists, students will complete the development and ability to integrate and apply knowledge from the didactic curriculum to practice as a licensed pharmacist in the institutional pharmacy practice setting. The student pharmacist will evaluate prescription and patient information, basic steps of prescription, data entry, prescription preparation and labeling, observe prescription consultations, understand the basics of medication compliance and errors in an institutional pharmacy practice setting.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 680, 750, 751 Capstone Project I, II, III (0.5, 0.5, and 1 unit each)**

Capstone Project series requires students to perform research/scholarly activity project under the supervision of an internal faculty member or external preceptor. The course has been integrated longitudinally to provide the student with opportunities to participate in various scholarly activities such as: bench research, educational research, community-based research, clinical research, literature review, or other kind of scholarly activity. The project will culminate in a Capstone Poster Day, where students will be given the opportunity to share their results.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 765 Emerging Issues and Practice Readiness Examination (2 units)**

This course is intended to assess the readiness of the students to enter the final year of the curriculum. The course includes multiple small groups, in which each group reads and discusses a variety of topical papers relevant to the scope of pharmacy practice. Students present individually and in teams. A comprehensive exam to assess practice readiness is also administered and is comprised of knowledge and skills from courses completed to date.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

**PHM 780, 781, 782, 784, 785, 786, 787, 788, and 789 (1 or 2 units each)**

Students select from a list of approved electives. Each elective may be taken once per student. Electives include topics in the following: drug development, infectious diseases, pharmacogenomics, pharmacy management, psychiatry, research, spanish, statistical analysis, substance abuse, and transitions of care.

*Prerequisites: Successful completion of prior quarter coursework or program permission.*

## CLINICAL YEAR P 4

### **PHM 801, 802, 803, 804, 805, 806 Advanced Pharmacy Practice Experience (6 units each)**

Each student completes six advanced pharmacy practice experiences, each of six weeks duration. These experiences take place in the following practice settings:

- Community Pharmacy
- Hospital or Health System Pharmacy
- Inpatient/Acute Care General Medicine
- Ambulatory Care
- Two Elective Settings

Elective settings include: academia, ambulatory care specialties, compounding, consultant pharmacy, medication therapy management, internal medicine specialties, long-term care, managed care, nuclear medicine, optometric pharmacy, pharmacy administration, pharmaceutical industry, regulatory, research, and specialty pharmacy.

6 x 6-week experiences and 6 h / experience = 36 credits

*Prerequisites: Successful completion of prior quarter of coursework or program permission.*

#### **PHM 801 Advanced Pharmacy Practice Experience: Community Pharmacy Practice (6 units)**

This course provides advanced pharmacy practice experience for students of the College of Pharmacy. Under appropriate preceptor supervision and consistent with practice regulations for entry-level PharmD candidates, student pharmacists will complete the development and ability to integrate and apply knowledge from the didactic curriculum to practice as a licensed pharmacist in the community pharmacy practice setting.

#### **PHM 802 Advanced Pharmacy Practice Experience: Hospital/Health System Pharmacy Practice (6 units)**

This course provides advanced pharmacy practice experience in hospital or health system pharmacy practice settings, with emphasis on individualized patient care and hospital/health system-based practices. Students identify, evaluate, and resolve medication therapy related problems; assist with drug information, participate in interprofessional care and patient care rounds, monitor patients, identify opportunities for therapeutic interventions, and communicate with other healthcare professionals. Practical understanding of clinical pharmacy systems, sterile products preparation, formulary management, protocol application, dose adjustments, use of electronic medical records, medication safety and reconciliation, pharmacokinetic and hyper-alimentation consultations, and demonstration of understanding of pharmacy laws, standards, and hospital-based operational processes is expected.

#### **PHM 803 Advanced Pharmacy Practice Experience: General Medicine (6 units)**

This course provides advanced pharmacy practice experience for students of the College of Pharmacy. Under appropriate preceptor supervision and consistent with practice regulations for intern pharmacists, students will complete the development and ability to integrate and apply knowledge from the didactic curriculum to practice as a licensed pharmacist in the general medicine pharmacy practice setting. The student pharmacist will gain experience in practice management, and interactions with other health care providers. The students will develop an understanding of the pathophysiology, complications, pharmacotherapy and non-pharmacotherapy management in various patient populations encountered in the general medicine practice setting.

#### **PHM 804 Advanced Pharmacy Practice Experience: Ambulatory Care Pharmacy Practice (6 units)**

This course provides advanced pharmacy practice experience for students of the College of Pharmacy. Under appropriate preceptor supervision and consistent with practice regulations for intern pharmacists, students will complete the development and ability to integrate and apply knowledge from the didactic curriculum to practice as a licensed pharmacist in the ambulatory care pharmacy practice setting. The student pharmacist will gain experience in practice management, and interactions with other health care providers.

#### **PHM 805 and 806 Advanced Pharmacy Practice Experience: Elective Rotations (6 units)**

This experiential course provides the opportunity for student pharmacists to select from a list of electives with a variety of non-patient care foci or an additional clinical specialty pharmacy practice experience. Student pharmacists under the supervision of an adjunct faculty or fulltime faculty member will gain experience in their chosen elective area. The student will continue to develop a philosophy of practice, an understanding of the role of the pharmacist as a member of the health care team, and gain knowledge and skills to manage resources and daily operations applicable to the specific elective rotation site.

## **SCHOLARSHIPS AND GRANTS**

At this time, the COP is developing their institutional scholarships. Students apply with an essay or will be selected by a scholarship committee.

## **COMMENCEMENT AWARDS**

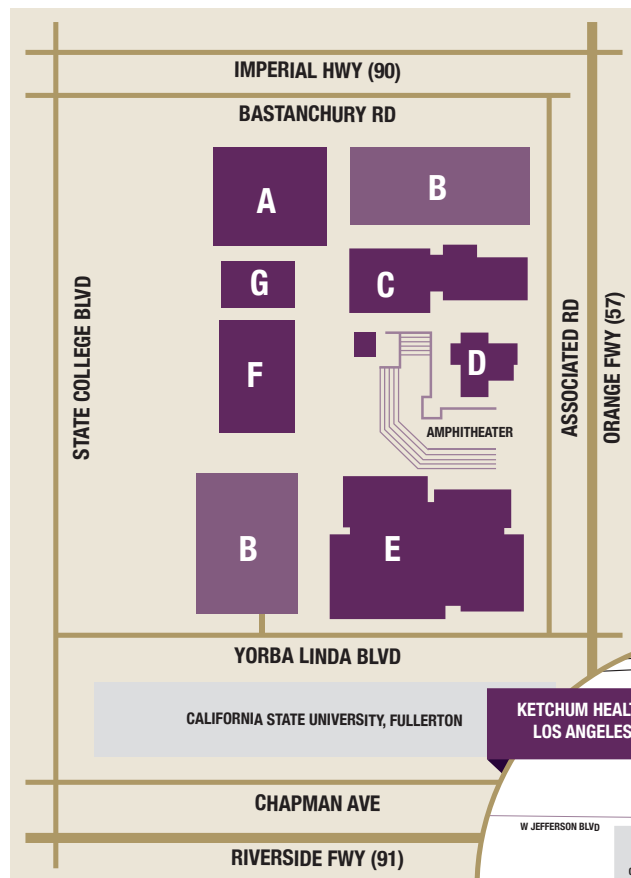
Latinized honors are accorded to those students who have excelled scholastically on the following basis:

Summa Cum Laude	3.80 – 4.00
Magna Cum Laude	3.60 – 3.79
Cum Laude	3.40 – 3.59



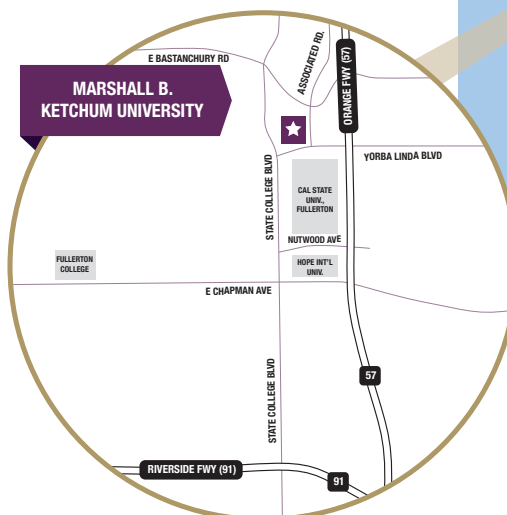
# CHAPTER IV: MAPS, CALENDAR, ADMINISTRATION, FACULTY, CONTACT US

## Maps



### The campus

- A Richard Hopping Academic Center
- B Faculty, Staff and Student Parking
- C Basic and Clinical Sciences
- D Administration
- E Health Professions Building
- F Warren & Carol Low Student Union/Campus Store
- G Patricia Hopping Commons



## Abbreviated University Academic Calendar Year 2018/19

(see program for detailed calendar)

### Summer Quarter

Memorial Day Recess (University Closed)

May 26-28, 2018

Summer Quarter Begins

May 29, 2018

Independence Day Recess (University Closed)

July 4, 2018

Summer Quarter Ends

August 18, 2018

### Fall Quarter

Orientation Week

August 13-17, 2018

Fall Quarter Begins

August 20, 2018

Labor Day Recess (University Closed)

September 3, 2018

Fall Quarter Ends

November 10, 2018

SPAS Commencement

November 10, 2018

### Winter Quarter

Winter Quarter Begins

November 12, 2018

Thanksgiving Recess (University Closed)

November 21-24, 2018

Instruction Resumes (All Students)

November 26, 2018

Winter Recess (All Students)

December 22, 2018 - January 6, 2019

Instruction Resumes (All Students)

January 7, 2019

Martin Luther King Recess (University Closed)

January 21, 2019

Winter Quarter Ends

February 23, 2019

Spring Recess

February 25 - March 1, 2019

### Spring Quarter

Spring Quarter Begins

March 4, 2019

SCCO Commencement

TBD

Spring Quarter Ends

May 25, 2019

## MBKU Directories

### Board of Trustees

[ketchum.edu/about/board\\_of\\_trustees](http://ketchum.edu/about/board_of_trustees)

### Administration

[ketchum.edu/about/administration](http://ketchum.edu/about/administration)

### Faculty

SCCO: [ketchum.edu/optometry/faculty](http://ketchum.edu/optometry/faculty)

SPAS: [ketchum.edu/pa\\_studies/faculty](http://ketchum.edu/pa_studies/faculty)

COP: [ketchum.edu/pharmacy/faculty](http://ketchum.edu/pharmacy/faculty)

## Contact Us

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Admissions, College of Pharmacy .....	714.872.5698
Admissions, Graduate Program .....	714.449.7494
Alumni Relations .....	714.463.7559
Business and Accounting Office .....	714.463.7546
Campus Safety .....	714.992.7892
Campus Store.....	714.449.7434
Financial Aid .....	714.449.7448
Administration and Finance & CFO, VP .....	714.463.7540
Human Resources, VP .....	714.449.7459
Interprofessional Health Studies.....	714.449.7470
M.B. Ketchum Memorial Library.....	714.449.7440
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Optometry Residencies.....	714.463.7527
Patient Appointments, Ketchum Health.....	714.463.7500
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University Advancement, VP .....	714.463.7550