CN

CALIFORNIA NORTHSTATE UNIVERSITY
COLLEGE *of* MEDICINE

CNUCOM Program Review
WORD VERSION

June 2020

Glossary of CNUCOM Abbreviations

AAMC	Association of American Medical Colleges
AAMCMSGQ	AAMC Medical School Graduation Questionnaire
ACGME	Accreditation Council on Graduate Medical Education
AMA	American Medical Association
BOT	Board of Trustees
CAMS	Comprehensive Academic Management System
CCBL	Clinical Case-Based Learning
CE	Continuing Education
CFR	Criteria for Review
CiM	Careers in Medicine
CK	Clinical Knowledge
CLO	Course Learning Outcome
CMA	California Medical Association
CME	Continuing Medical Education
CNU	California Northstate University
CNUCOM	California Northstate University-College of Medicine
COP	College of Pharmacy
COVID-19	Coronavirus Disease 2019
CP	Clinical Presentation
CQI	Continuous Quality Improvement
CS	Clinical Skills
CT&L	Center for Teaching and Learning
CTM	Center for Translational Medicine
CVP	Cardiovascular and Pulmonary Systems
DAC	Dean's Advisory Council
DCI	Data Collection Instrument
EPA	Entrustable Professional Activities
ESA	Educational Service Agreement
FERPA	Family Educational Rights and Privacy Act
FLC	Faculty Learning Community
GI	Gastrointestinal System
HIPAA	Health Insurance Portability and Accountability Act
HPM	Hospice & Palliative Medicine
HR	Human Resources
HPSP	Health Professional Scholarship Program
IACUC	Institutional Animal Care and Use Committee
IBC	Institutional Biosafety Committee
ILO	Institutional Learning Outcome

IPE	Inter-professional Learning Experiences
IPE-GR	Inter-professional Learning Experiences-Grand Round
IR	Institutional Research
IRB	Institutional Review Board
ISA	Independent Student Analysis
IT	Information Technology
ITLE	Institute for Teaching & Learning Excellence
LCME	Liaison Committee for Medical Education
M1	Medical Student-1st Year
M2	Medical Student-2nd Year
M3	Medical Student-3rd Year
M4	Medical Student-4th Year
MC	Masters Colloquium
MD	Doctor of Medicine
MS	Medical Skills
MSK	Integumentary and Musculoskeletal Systems
NBME	National Board of Medical Examiners
NBME CAS	National Board of Medical Examiners Customized Assessment
NCEF	Northern California Education Foundation
OBGYN	Obstetrics-Gynecology
OIRQA	Office of Institutional Research, Quality, and Assessment
OME	Office of Medical Education
OSCE	Objective Structured Clinical Examination
PBL	Problem-Based Learning
PLO	Program Learning Outcome
Repro	Reproductive Systems
SD	Standard Deviation
SDSSP	Self-Directed Student Scholarly Project
SIGs	Student Interest Groups
SIL	Student Interactive Learning Session
SOL	Stages of Life
SPC	Student Promotions Committee
SSR	Self-Study Report
SSVMS	Sierra Sacramento Valley Medical Society
TBL	Team-Based Learning
TOC	Transitions of Care
USMLE	United States Medical Licensing Examination
WSCUC	WASC Senior Colleges and Universities Commission

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1. Introduction/Context

The California Northstate University, College of Medicine (CNUCOM) is a 4-year allopathic medical program based in Elk Grove, CA, which is dedicated to the development of highly competent, forward-thinking, community- and patient-centered healthcare providers. In keeping with the College's mission *to advance the art and science of medicine*, we are engaged in on-going evaluation and improvement to ensure that our program and our graduates are ready for and adaptable to the current and future practice of medicine.

California Northstate University's (CNU) program review process is aligned with the following WASC Senior Colleges and Universities Commission (WSCUC) Criteria for Review (CFRs) from the *2013 Handbook of Accreditation* (Standards 2 and 4): CFR 2.7, CFR 4.1, CFR 4.3, CFR 4.4, and CFR 4.6. These requirements address the overall process and place it within the larger context of CNU's ongoing, comprehensive quality assurance and improvement systems. We have been especially cognizant of describing our data-driven analyses and decision-making, assessments of our student learning outcomes, and evidence of institutional quality. Further, we underline the importance of the governance process in our College; specifically, that the program review process is faculty-driven, that assessment of faculty is carried out by faculty, that collaboration between departments within the College and external stakeholders is vital, and that recognition of the strengths and weaknesses within the College is an indispensable outgrowth of our own self-study.

The CNUCOM Program Review Handbook has been used as a guide to structure this report (Appendix A). As outlined in the handbook, the distinguishing features of the CNUCOM program review are: evidence-based claims and decision-making, assessment of student learning outcomes, and integration of results with planning, budgeting, and institutional quality assurance systems. Therefore, this report outlines our evaluation of the quality of the medical education program utilizing descriptive and quantitative measures.

In the following sections we provide:
- An introduction of CNUCOM. As a young medical program, a historical review highlights why our mission is so vital to the area and region we call home. We also provide a general overview of CNUCOM's administration, continuous quality improvement processes, and learning and research infrastructure.

- Evidence of CNUCOM's program quality. This includes data and supporting materials that provide insights into our student body, the curriculum and learning environment, student learning and success, and faculty.

- Demonstration of overall viability and sustainability of the CNUCOM program. This includes an overview of the demand for the program as well as allocation of CNUCOM resources for faculty, student support services, information and technology, facilities, staff, and financial resources.

This program review encompasses the 4-year MD program at the College of Medicine, California Northstate University and covers relevant processes and data from the program's inception in Fall 2015

up to and including Spring 2020 (where applicable); thus, relevant data on five academic years (2015 – 2020) and five cohorts of students (including the inaugural graduating classes of 2019 and 2020) are presented and evaluated.

The Office of Medical Education (OME) has overseen the process of self-study within this program review to ensure the mission of CNUCOM guides all areas of growth and improvement. This program review report includes relevant data collected from the Assessment Committee, Office of Assessment and Evaluation, Office of Curriculum, Office of Student Affairs, Office of Faculty Affairs, Center for Teaching & Learning, Center for Translational Medicine, input of various faculty and staff, either individually or through Committees, and the CNUCOM leadership team. Data and assessment processes in this report have also been informed by the CNUCOM Assessment Manual (Appendix B) that contains benchmarks for CNUCOM program review, evaluation procedures, and different tools and outcome measures that have been used in the evaluation process.

A Program Review Committee was appointed by the Associate Dean of Medical Education to undertake this full program review and report. The committee is comprised of the following individuals:

Table 1: CNUCOM Program Review Committee

Committee Member	Role	Title
Dr. Catherine Yang (Lead)	Faculty	Vice-President of Academic Affairs; Associate Dean of Medical Education; Professor of Molecular Pharmacology and Clinical Biochemistry
Dr. Rajendra Ramsamooj	Faculty	Assistant Dean of Curriculum; Professor of Pathology, Surgical Pathology and Clinical Skills; LCME Faculty Accreditation Lead
Dr. Tracy Yarbrough	Faculty	Director of Center for Teaching and Learning; Associate Professor of Physiology; LCME Self-Study Task Force Chair
Dr. Vijay Khatri	Faculty	Assistant Dean of Faculty Affairs & Development; Professor of Surgery and Oncology; M4 Director
Dr. Darilyn Falck	Faculty	Former Assistant Dean of Student Affairs; Former Associate Professor of Emergency Medicine
Dr. Juan Urbano Jr.	Staff	Director of Assessment and Evaluation
Mrs. May Yang	Staff	Coordinator, Office of Medical Education; LCME Survey Visit Coordinator

The overall governance process for CNUCOM's Program Review is organized by the CNU Office of Institutional Research, Quality, and Assessment (OIRQA). In July of 2019, the OIRQA established the timeline for review and provided institutional assistance to build a data dashboard and data management plan that collected, verified, and analyzed departmental data. Through OME, the process was implemented in consultation and collaboration with administrative leaders. From Fall 2019 to the present, the CNUCOM Director of Assessment and Evaluation coordinated data for faculty to conduct a departmental self-study. Faculty have overseen the evaluative aspects of this program review and results

of the self-study have been consolidated into this report by the Program Review Committee. Finally, in June 2020, program strengths and limitations have been identified and solutions to identified problems have been suggested.

Next steps include an external review and written report, including recommendations for improvement. Agreed-upon Findings and Recommendations will then be deliberated between the department, the Program Review Committee, and senior administrators with decision-making power regarding priority setting and resource allocation. The final product of this program review, a Memorandum of Understanding, will subsequently be integrated into college and institutional planning and budgeting.

Background of California Northstate University, College of Medicine

The College of Medicine (CNUCOM) is part of the California Northstate University (CNU) system and grants the degree of Doctor of Medicine (MD) to recipients who fulfill all the required elements: completion of 150 weeks of pre-clinical and clinical training, pre-clerkship and clerkship experience, research projects, and community-service based learning experiences. CNUCOM does not offer any other degrees or minor certifications at this time. Through its education program, CNUCOM seeks to provide an environment wherein its graduates can become life-long learners in the field of medicine, enriching the community that helped to build it. CNUCOM supports the dynamic learning community and nurtures the development of empathic, proficient physicians dedicated to continuous learning and excellence in clinical practice. These goals are driven by the six core values of CNUCOM: excellence in medical care, professionalism, ethics, compassion, social accountability, and innovation.

CNU was founded in 2007 by a group of visionary leaders that realized the growing local and national shortage of primary care physicians. The founders committed to designing a college of medicine that would help fulfill the medical demands of the nation while committing to prioritizing the needs of the California Central Valley. Building upon CNU's mission, *"To advance the art and science of healthcare,"* and vision*, "To provide innovative education and healthcare delivery systems,"* CNUCOM's mission is-

To advance the art and science of medicine:
1. through *EDUCATION;* CNUCOM seeks to promulgate a culture and habit of life-long learning for its graduates.
2. through *SCHOLARSHIP;* CNUCOM seeks to cultivate leaders in basic science, translational, clinical, and educational research to develop innovative educational materials and processes, and to establish thought-leaders in science and education by fostering an environment of inquiry within the medical school.
3. through *SERVICE;* CNUCOM seeks to engage in serving the underserved in the community as a critical function of the medical school.
4. through *SOCIAL ACCOUNTABILITY*; CNUCOM seeks to fully integrate community service and health, health care access, global health and health education, health care policy and advocacy, and diversity as essential elements of the medical school curriculum and environment.

The successful launch of the University's first College, the College of Pharmacy, led to the eventual establishment of CNUCOM. An initial strategic outline for the program at CNUCOM was developed in January 2011 by the Board of Trustees, Interim Dean of the College of Medicine, University President, Dean of the College of Pharmacy, and academic consultants. Due to dedicated leadership, funding, and resources provided by local healthcare community members, much of the preliminary design of the structure of CNUCOM and its curriculum was in place by July 2011.

In July 2012, the University sponsored an off-site retreat to review and develop strategic plans for the University, the College of Pharmacy, and the College of Medicine. The strategic plan for the College of Medicine was developed in collaboration and alignment with the strategic plan for its parent institution, California Northstate University. These strategic plans were reviewed by the faculty and submitted to and approved by the Board of Trustees in August 2012. Since then, CNUCOM Strategic Plan reviews and updates have been completed by the faculty on an annual basis, in July 2013, October 2014, May 2015, July 2016, June 2018, and October 2019, and reviewed by the University President and Board of Trustees during the annual Trustees' retreat. Outcomes of the school's strategic plan are monitored by CNUCOM faculty and the Dean's Advisory Council (DAC) through assessment processes occurring during annual strategic planning retreats. Results guide future planning and are reported to the Vice President of Institutional Research, Quality & Assessment, and appropriately shared with constituencies.

CNUCOM successfully completed all necessary planning and accreditation procedures and received approval from WSCUC (regional and institutional accreditor) to begin offering the Doctor of Medicine degree in August 2013 and received preliminary accreditation from LCME (specialized medical program accreditor) in June 2015. The inaugural class of 60 students matriculated in September 2015. CNUCOM subsequently underwent a limited survey site visit in February 2019 and earned LCME provisional accreditation status. More recently, follow-up materials were submitted to the LCME in April 2020. Finally, in addition to preparing this program review for WSCUC accreditation, we are currently in the process of compiling the Data Collection Instrument (DCI) and Self Study Report (SSR) with a full LCME accreditation survey site visit scheduled in March 2021.

Despite our short history, we have already begun to see the fruits of our commitment and our impact on the local community. CNUCOM is receptive to input and feedback from the community as our students perform clinical clerkships in a variety of community hospitals and clinics in the Elk Grove and greater Sacramento areas. CNU has also embarked upon a number of new projects, including the process of constructing a new hospital in Elk Grove in response to the community's need for better access to high quality medical care.

To this end, students, faculty, and staff regularly volunteer at community health fairs, hold continuing medical education seminars, participate at city council meetings, and engage in local science fairs at underserved high schools. As further evidence of CNUCOM's commitment to the health of its community, it is significant that approximately one-third (15 out of 52) of graduates in our inaugural class of 2019 have remained in the Central Valley to serve the community. Subsequently, 10 out of 86 recent graduates from the class of 2020 also matched at medical centers within the Central Valley and will begin their postgraduate training this summer. Additionally, 46% of students from this most recent class matched in primary care specialties, compared to 42% of U.S. students nationwide. Given the concern of declining interest in the primary care specialties of Family Medicine, Internal Medicine,

Pediatrics, and Obstetrics/Gynecology among U.S. medical students, it is outstanding that 40 out of 87 CNUCOM students from the class of 2020 matched in primary care specialties.

Table 2: Match Results 2019 and 2020

Match Results 2019		
Specialty	**Number**	**Percentage**
Primary Care:		
Family Medicine	3	5.8%
Internal Medicine	11	21.2%
Pediatrics	4	7.7%
Emergency Medicine	6	11.5%
Physical Medicine & Rehabilitation	1	1.9%
Surgery	10	19.2%
Psychiatry	4	7.7%
Radiology	4	7.7%
Anesthesiology	3	5.8%
Neurology	5	9.6%
Otolaryngology	1	1.9%
Match Results 2020		
Specialty	**Number**	**Percentage**
Primary Care:		
Family Medicine	11	12.6%
Internal Medicine	15	17.2%
Pediatrics	11	12.6%
Obstetrics/Gynecology	3	3.4%
Emergency Medicine	15	17.2%
Surgery	10	11.5%
Psychiatry	6	6.9%
Radiology	4	4.6%
Anesthesiology	2	2.3%
Orthopedic Surgery	2	2.3%
Pathology	2	2.3%
Neurology	2	2.3%
Dermatology	1	1.1%
Otolaryngology	1	1.1%
Transitional Year	1	1.1%

Organization

CNUCOM was originally structured with a single Department of Medical Education, which effectively served the medical education program's early developmental stage up through the matriculation of the current M1 and M2 classes. As CNUCOM matured, the Dean exercised his vision and leadership in

reorganizing the structure and functions of the College by reallocating the functions of the solitary Medical Education Department into two departments. Specifically, the Dean created the Basic Sciences Department and the Clinical Sciences Department, with two department chair positions. Finally, as the College grew from its building phase to its sustaining phase, with the transition of its charter class into clinical clerkships (Phase B), the Dean, in collaboration with the Dean's Advisory Council (DAC), approved the re-organization of CNUCOM, creating a new position for an Associate Dean for the Office of Medical Education (OME). At the same time, he approved an additional structural change for the College that now includes three departments: the Department of Basic Sciences, the Department of Clinical Sciences, and the Department of Clinical Medicine, each with its own Chair. Thus, responsibilities for medical education have been redistributed from the original single department to three academic departments and leaders. The central oversight of the department leadership is further supported by clerkship directors, medical skill directors, and course directors. CNUCOM's central administration is comprised of three associate deans and three assistant deans. The "protected" administrative time available to each range from 50 to 70%, as appropriate to their roles and responsibilities.

Office of Medical Education
The program's development, student progression, and academic affairs are discussed at biweekly Office of Medical Education (OME) meetings. These meetings are attended by the Associate Dean of Medical Education (Chair), Vice-Dean, Assistant Dean of Curriculum, Assistant Dean of Student Affairs, Assistant Dean of Faculty Affairs, the Director of Assessment and Evaluation, and all three department chairs.

Dean's Advisory Council
The Dean's Advisory Council (DAC) is composed of the Dean, Vice Dean, Associate Deans, Assistant Deans, and Department Chairs of CNUCOM. The DAC reviews and approves any changes proposed within CNUCOM that relate to curriculum, student progression, clinical sites, staffing, faculty workload, budgets, etc. Recommendations are discussed, then changes requiring Board of Trustees approval are forwarded for review.

Board of Trustees
The CNUCOM Board of Trustees (BOT) approves Dean's appointments that are advocated by the President. Appointments of Associate and Assistant Deans are made based on the recommendation of the Dean with approval of the President. Faculty appointments are made by recommendation of the Department Chairs, reviewed and ranked by the Rank and Promotion Committee, endorsed by the Dean, and then approved by the President. The President's approval in each case is vested from the delegated authority of the BOT.

Accreditation
The medical education program at CNUCOM has integrated processes for continuous quality improvement (CQI) to ensure student success is a top priority. CNUCOM engages in institution-wide comprehensive program review which includes systematic self-study, analyses of statistical data summaries and learning outcomes results, feedback from students and course evaluations, self-study reports, and external review. The Office of Institutional Research, Quality, and Assessment (OIRQA) works with faculty and the Office of Medical Education to guide CNUCOM through both its regional

and specialized program accreditation processes. Results are then used to make improvements in teaching, learning, resource allocation, and support services.

Annual Strategic Planning Retreat

Strategic planning and program evaluation incorporate both WSCUC and LCME standards and elements. Accreditation standards and elements guide outcome measure indicators needed for CQI monitoring, evaluation, and compliance. Annually, outcomes of the school's strategic plan are reviewed by CNUCOM faculty and the DAC during the Strategic Planning Retreat. Review of progress or revisions of Strategic Plan goals, strategies, tactics, outcome measure indicators, and evaluation rubrics are crucial as CNUCOM continues to evolve (see Appendix C for the most recent Retreat Agenda and Strategic Plan). Importantly, this Program Review is part of CNUCOM's efforts to meet Strategic Plan Goal #2: Accreditation, Strategy 2.1 to "continue appropriate accreditation standards and provide educational resources and institutional support for students" and is aligned with LCME Standard Elements 1.1, 8.4; and WSCUC CFR 2.6, 2.7, 2.8. The subsequent tactic to "achieve and maintain final accreditation of the institutional and programmatic accreditation bodies" has been identified as currently in its "developing" stage as we seek full accreditation from WSCUC and LCME.

Monitoring and evaluation processes include the following steps:
 (1) Selection of accreditation elements to be monitored
 (2) Determination of the outcome measures and their data sources for each selected element
 (3) Identification and assignment of individuals (faculty/administrators) and/or committees for monitoring and evaluation of performance related to compliance with the monitored elements
 (4) Determination of reporting channels and dataflow
 (5) Determination of the frequency of monitoring and evaluation for each selected element
 (6) Scheduling of dates for data collection, review, analysis, and action plan implementation and follow up

Given the rigor and frequency of specialized medical program requirements, the retreat has also been used to identify and target LCME elements that are critical for a medical program. LCME elements selected for additional monitoring and evaluation may include those that meet one of the following criteria:
 (1) address critical educational and academic areas
 (2) are frequently cited by LCME as "unsatisfactory" or "satisfactory with monitoring"
 (3) include explicit requirements for monitoring and evaluation

Assessment and Evaluation
Ongoing assessment and evaluation processes are used to make data-driven improvements in the curriculum. Curriculum review occurs at multiple levels, encompassing shared governance. For Phase A (pre-clinical), the review process begins with course committees which review all available data to identify strengths and areas for focused improvement. These course committees then propose course-level changes to the Phase A subcommittee for approval. Approved changes are then submitted to the Curriculum Committee for consideration and final approval. For core and advanced clinical phases (Phases B and C), the respective subcommittees review clerkship data and submit proposals for clerkship improvements to the Curriculum Committee. Changes to pre-clerkship courses and courses that have

been approved by the Curriculum Committee are then forwarded to the Faculty Council Executive Committee for review and presented to the Dean for final approval.

Additionally, CNUCOM has an annual curricular review process where course and faculty evaluations, student survey results, and student learning outcomes are compiled and reviewed at the annual Curriculum Planning Retreat to support course improvement, faculty teaching, and student and organizational learning. This process has resulted in continued improvements in program quality and reinforcement of CNUCOM's dedication to its mission.

Curriculum Planning Retreat

Annually, the entire COM faculty meet to discuss the curriculum. The retreat is led by the Assistant Dean of Curriculum. Summaries of each required course and clerkship are presented for discussion. The retreat is concerned with the overall pedagogy of CNUCOM and its delivery with regard to the Program Learning Outcomes (PLOs) and Institutional Learning Outcomes (ILOs). In addition, metrics of curriculum effectiveness including National Board of Examiners (NBME) Customized Assessment Service (CAS) summative exam results for courses, Shelf (subject) exams for clerkships, United States Medical Licensing Exam (USMLE) performance, and other metrics are reviewed.

Areas of improvement are identified and discussed. Student feedback is also reviewed, discussed, and areas of improvement are identified. For example, the Curriculum Planning Retreat held in summer of 2019, included a focused session on determining methods to improve interactive learning (see Appendix D). Resulting ideas and innovative teaching modalities include the 1) enrichment of virtual clinical case-based self-directed learning and 2) incorporation of peer teaching into high stakes assessment through hybrid exams.

In years 1 and 2, students participate in self-directed learning through a team-based Clinical Case series embedded within organ systems courses. Student teams work through a virtual clinical case over the course of each week—developing differential diagnoses, prioritizing a clinical workup, identifying their learning needs, and investigating the literature. Students ultimately lead discussions at the end of each week that are followed by faculty-led discussion. Guided by student assessment and evaluation results, CNUCOM sought to enrich self-directed learning by emphasizing student skills for lifelong learning, transitioning to just-in-time formative feedback on student case discussions, and increasing emphasis on feedback regarding student use of learning resources. As a result, CNUCOM has been able to effectively implement problem-based learning (PBL) into courses across the Phase A curriculum in AY 2018-2019.

Similarly guided by assessment and evaluation results, increased peer teaching was identified as a method to improve quality and increase achievement of learning outcomes. Through this process, select courses in Phase A now employ hybrid (individual and collaborative) testing for mid- or end-of-course high stakes exams. In this format, students first take an exam individually and then retake the exam in pre-formed student teams; the team administration allows for clarification of confusing concepts and timely reinforcement of conclusions reached by consensus. These hybrid exams allow students to discuss test preparation and test taking approaches which may be different from their own.

Institutional Research
Institutional research (IR) data guides planning and development in regards to the functioning and effectiveness of each of the institution's offices and service areas. Institutional research ensures that each office (e.g., IT, library, financial aid, accounting, registrar) assesses effectiveness in services to students, develops actionable plans for continuous improvement, and that all services provided are in support of the University's mission, vision, goals, and values. A key component of IR includes collecting and analyzing information about the institutional climate in order to make improvements. An example of this institutional research function is the OIRQA's proactive administration of satisfaction surveys to faculty, staff, students, and administrators in each College and to University administrators (see Appendix E for full Satisfaction Survey Questions). Analysis of the latest survey results yielded key areas of strength and weakness which have been reported to College Deans, administrative leadership, and faculty and have been incorporated into this Program Review.

Center for Teaching and Learning
The CNUCOM Center for Teaching and Learning (CT&L) was established by the OME in late 2018 to serve the growing demand for a robust learning infrastructure. In alignment with the CNUCOM mission, vision and values, the mission of the CT&L is to *position CNU at the forefront of medical education by supporting a culture of value, excellence, and innovation for both students and faculty of CNUCOM.* Based on this mission, the CT&L completed a faculty needs-assessment in early 2019, the results of which supported the designation of four areas of priority: *innovation* (to catalyze the implementation and evaluation of innovations in teaching science, educational method implementation, and research), *reflection* (to establish on-going continuous quality improvement processes for current and emergent teaching and learning strategies), *development* (to facilitate learner-driven professional development and scholarship), and *collaboration* (to develop and cultivate strategic partnerships centered on medical education pedagogy and/or educational research within and beyond CNU).

In its efforts to support a culture of reflection and innovation, CT&L is engaged with the Office of Assessment in the development of formative multi-rater faculty assessment, with the aim of providing faculty with feedback on pedagogy and effectiveness at multiple time points throughout the year. At the same time, the CT&L and Office of Assessment are developing a series of end-user workshops focused on the development and quality assurance process for in-house multiple-choice exams. Through its engagement with the University's Institute for Teaching and Learning Excellence (ITLE), CT&L worked collaboratively on the development, implementation, and assessment of the inaugural Faculty Learning Community (FLC) series at CNU in summer of 2019. CNUCOM faculty participated as teaching faculty for the series (centered on technology-enhanced teaching and learning) and as members of the FLC.

Most recently, CT&L has worked alongside the CNUCOM Student Government to develop and bestow student-selected faculty teaching awards for the first time in AY 2019-20. Additional projects include the development of processes to support faculty integration of new teaching technologies through collaboration with the Assistant Dean of Curriculum, the establishment of monthly faculty-led medical education journal clubs, and the planning for a pedagogy teaching lab/pilot program for faculty evaluation of new teaching and assessment interventions.

Center for Translational Medicine

The CNUCOM Center for Translational Medicine (CTM) builds on the extensive research infrastructure of the OME to provide seed grants for faculty-initiated research. CTM was established in late 2018 with the following mission: *to cultivate a thriving academic environment that is collaborative, intuitive, and creative*. The Center is instrumental in supporting successful growth of research endeavors both locally with institutions in Northern California and nationally. Within the Center, there are federally-funded as well as industry-sponsored researchers with extensive research portfolios in basic science, translational, and clinical research. CTM fosters innovative and cutting-edge research ideas essential for groundbreaking discoveries in the following domains:

- Oncology
- Maternal Fetal Medicine
- Cardiovascular Medicine
- Vaccines
- Virology
- Drug Discovery
- Innovation in Digital Health
- Endocrinology

Additionally, the CTM is supported by fully equipped basic sciences research laboratories and nurtures integrated collaborations between basic science and clinical faculty.

Clinical Case-Based Learning
As CNUCOM's primary implementation of problem-based learning, Clinical Case-Based Learning (CCBL) is utilized throughout the organ system-based courses within the pre-clerkship curriculum. Originally implemented as a trial course in AY 2017-18, CCBL was fully employed the following year as a way to increase opportunities for global self-directed learning, particularly as it enhances students' ability to assess and investigate their own learning needs. In alignment with the LCME's current directive for self-directed learning (LCME Standard 6), the CCBL at CNUCOM incorporates students' self-assessment of learning needs, identification, appraisal, and synthesis of relevant information (including assessment of the information's credibility/quality and applicability), sharing of that information with peers and faculty through oral and written presentations, and faculty feedback on students' information-seeking processes.

2. Analysis of Evidence about Program Quality and Viability

2a. Evidence of Program Quality

Student Data
A demographic profile of our students, by graduating class, is shown below. Enrollment trends indicate increasing diversity across various categories, particularly by gender identification (female enrollment has increased by 21%) and race/ethnicity (minority student enrollment has increased by 15%) from our inaugural class of 2019 to the current class of 2023. In 2020, a Diversity Analysis (Appendix F) was completed to analyze CNUCOM's five-year trend data for the first time. In addition to drawing attention to the increasing diversity of the student body and disaggregating enrollment by ethnic group and gender, this data includes valuable demographic trend data for faculty and senior administrative staff.

In addition to increasing diversity, the number of students entering each year has increased over the last five years. Similarly, the average GPA of students has gradually increased every year until recently when the Class of 2022 mirrored the Class of 2021 with a mean GPA of 3.60, making CNUCOM an increasingly competitive and selective program. Considering our mission of providing quality physicians for the California Central Valley, applicant residence also remains an important indicator. To date, each of our matriculating classes have been primarily comprised of students hailing from California, with 92% in-state students in the Class of 2022.

Table 3: Demographics of Matriculating Students

Description	Class of:				
	2019	**2020**	**2021**	**2022**	**2023**
Number Matriculating					
All Students	60	90	94	97	96
Gender					
Male	41	50	49	51	50
Female	19	40	45	46	46
Race/Ethnicity					
White/Non-Hispanic	23	32	28	33	26
Black/Non-Hispanic	3	1	2	2	1
Latino/Hispanic	3	6	5	5	3
Asian/Pacific Islander	31	43	45	50	39
Native American/Alaskan	0	0	4	2	0
Other/Not Known	0	8	10	5	27
Entering Mean GPAs and Scores					
Average GPA	3.48/4.0	3.50/4.0	3.60/4.0	3.60/4.0	3.63/4.0
Average MCAT Score	32.2 (~88th Percentile)	33 (~91st Percentile)	511 (~83rd Percentile)	511 (~83rd Percentile)	512 (~85th Percentile)
Residency Status					
In-State	48	77	87	90	87
Out-of-State	12	13	7	7	9

Acutely aware of the health disparities in our nation and region, we are committed to creating an inclusive learning environment and training students that are sensitive to the increasingly complex, diverse, and intersectional identities of communities they serve.

The Curriculum and Learning Environment

Figure 1: CNUCOM Program Calendar

Number of weeks

FIRST YEAR

| Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |

Foundations | Heme | MSK | Holiday | Neuroscience | CVP
Masters | Colloq | MC *(contd)* | Holiday | MC *(contd)* | MC
Medical | Skills | MS *(contd)* | Holiday | MS *(contd)* | MS

SECOND YEAR

| Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |

Renal | GI | Endocrine | Holiday | Reproduction | Beh Sc | Stages of Life | Exm
Masters | Colloquium | MC *(contd)* | Holiday | MC *(contd)* | MC *(contd)*
Medical | Skills | MS *(contd)* | Holiday | MS *(contd)* | MS *(contd)*
Scholarly | Project | | Holiday

THIRD YEAR

Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

Internal Medicine	Surgery	Psychiatry	Neurology	Study/Elective/EM	Family Medicine	ODGYN	Pediatrics
Internal Medicine	Surgery	Psychiatry	Neurology	ODGYN	Family Medicine	Emergency	Pediatrics
Internal Medicine	Surgery	Psychiatry	Neurology	Pediatrics	Family Medicine	ODGYN	Emergency

Surgery	Neurology	Psychiatry	Internal Medicine	Study/Elective/EM	OBGYN	Pediatrics	Family Medicine
Surgery	Neurology	Psychiatry	Internal Medicine	Pediatrics	OBGYN	Emergency	Family Medicine
Surgery	Neurology	Psychiatry	Internal Medicine	OBGYN	Emergency	Pediatrics	Family Medicine

Psychiatry	Neurology	Internal Medicine	Surgery	Study/Elective/EM	Pediatrics	Family Medicine	OBGYN
Psychiatry	Neurology	Internal Medicine	Surgery	ODGYN	Pediatrics	Family Medicine	Emergency
Psychiatry	Neurology	Internal Medicine	Surgery	Pediatrics	Emergency	Family Medicine	ODGYN

Internal Medicine, Surgery, Psychiatry, Neurology as in Group 1, 2, 3 | Pediatrics, Family Med, Ob/Gyn (variable order with EM as below)

Family Medicine	OBGYN	Pediatrics	Study/Elective/EM	Internal Medicine	Surgery	Neurology	Psychiatry
Family Medicine	OBGYN	Neurology	Pediatrics	Internal Medicine	Surgery	Emergency	Psychiatry

ODGYN	Pediatrics	Family Medicine	Study/Elective/EM	Surgery	Psychiatry	Neurology	Internal Medicine
ODGYN	Pediatrics	Neurology	Family Medicine	Surgery	Psychiatry	Emergency	Internal Medicine

Pediatrics	Family Medicine	OBGYN	Study/Elective/EM	Neurology	Psychiatry	Internal Medicine	Surgery
Pediatrics	Family Medicine	Neurology	OBGYN	Emergency	Psychiatry	Internal Medicine	Surgery

FOURTH YEAR

Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun

Elective	Elective	Elective	Elective	Elective	Elective	Elective	Elective	Elective	Elective	Elective	Commencement
Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	Sub-I	

The Pre-clerkship Curriculum (Phase A)

The CNUCOM pre-clerkship curriculum is based on the Clinical Presentation (CP) model, largely developed by the University of Calgary in the mid-1990s and now increasingly implemented at schools of medicine worldwide.

Table 4: Phase A Courses

Student Year	Systems-Based Courses	Medical Skills	Masters Colloquium	Self-Directed Student Scholarly Project
M1	*Foundations of Clinical Medicine* *Hematology* *Integumentary and Musculoskeletal Systems* *Neuroscience* *Cardiovascular and Pulmonary Systems*	*Med Skills 601* *Med Skills 602*	*MC 611* *MC 612*	*SDSSP*
M2	*Endocrine System* *Gastrointestinal System* *Renal System* *Reproductive Systems* *Stages of Life* *Behavioral Medicine*	*Med Skills 603* *Med Skills 604*	*MC 613* *MC 614*	*SDSSP*

The pre-clerkship phase is divided into a series of organ systems-based courses (i.e., *Hematology*, *Cardiovascular*, etc.) following an initial foundational course which introduces basic concepts of biochemistry, immunology, and cellular and molecular biology (full AY 2020-2021 Course Calendar included in Appendix G). Within the organ systems-based courses, each week begins with a CP where students are introduced to an illness sign or symptom such as anemia (the first CP in the *Hematology System* course). Using the CP as a spring-board, students then engage in a guided, algorithm-based approach to evaluation of a patient with that clinical presentation. As the week progresses, students learn the associated basic and clinical sciences related to that clinical presentation, including the relevant anatomy, physiology, biochemistry, pathology, and initial management strategies. The week ends with students' discussions of their assessment and proposed management of a CP-based virtual case that they present to their colleagues and preceptor. The pedagogy is comprehensive and innovative, providing an opportunity for the students to learn about diseases through an integration of disciplines.

Within each system and across biomedical disciplines, the CNUCOM curriculum comprehensively addresses discipline-based society recommendations for medical student education, healthcare systems-derived, relevant training needs, and content as outlined in the USMLE (United States Medical Licensing Exam) outline. In addition, CNUCOM is currently engaged in benchmarking to the ACGME (Accreditation Council on Graduate Medical Education) Entrustable Professional Activities (EPAs) for medical school graduates. Through a series of steps and checks, CNUCOM is engaged in a process of continuous quality improvement. Each pre-clerkship course has a committee of biomedical and clinical discipline experts that reviews its proposed curriculum, teaching methods, and assessments. This is followed by course review by all course directors (Phase A Committee), with subsequent review by the Curriculum Committee for final approval. In this multi-step process, there are numerous checks and balances which ensure comprehensive and high-quality content delivery. As a further review, the Curriculum Committee Chair may call an ad hoc Gaps and Redundancies Committee to review content and identify areas of improvement.

Within all systems-based pre-clerkship courses, student achievement of Course Learning Outcomes (CLOs) is assessed using summative, customized multiple-choice exams through the National Board of Medical Examiners (NBME) system. For each exam, teaching faculty and course directors choose question items based on the relevant content, mapping each question to the CLO and, thereby, to the program learning outcomes (PLO). A sample of student performance on CLOs for *Neuroscience* (Spring 2020) is included in Appendix H. In addition, organ systems-based courses include other locally-derived summative assessments and assignments, as well as formative (NBME and/or locally-derived) assessments that support ongoing course director and student appraisal of learner understanding throughout the course.

In addition to the basic and clinical science content within Phase A, students are required to engage in a student-driven scholarly project, service learning, as well as coursework related to medical skills and personal/professional development. As part of the *Self-Directed Student Scholarly Project* (SDSSP) course series (two semester-long courses delivered over one calendar year), students learn about the scientific method, the spectrum of translational science, and undertake hypothesis-driven research projects. All projects are presented at CNUCOM's Research Day, many projects result in oral or poster presentations at regional and national meetings, and some have been published in peer-reviewed biomedical journals.

Courses emphasizing the acquisition of medical and clinical skills occur parallel with and complementary to the systems-based courses throughout Phase A. These *Medical Skills* courses incorporate history-taking and physical examination using standardized patients and patient simulations, as well as the utilization of electronic health records. Learning outcomes are assessed through formative and summative (at the end of each semester) performance-based exams (Objective Structured Clinical Exams). Finally, longitudinal *Masters Colloquium* courses provide students exposure to content including ethics, humanities, public and global health, and personal and professional development. As part of the service learning requirement embedded within the Masters Colloquia, students are required to volunteer at or with a community-based health organization, then provide a written reflection on the experience and its impact on them as a budding health professional. These reflections are reviewed and assessed by their CNUCOM advisor(s). Assessments for the Masters Colloquia also include NBME-based exams of relevant content at the end of each semester in Phase A.

Lastly, Phase A students must participate in a series of Inter-professional Learning Experiences (IPEs). According to the World Health Organization, "Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes." However, it has been challenging for many healthcare programs to successfully incorporate IPE in their curricula due to many reasons, prime among which are the diversity of professions for inclusion and the absence of a standardized policy or strategy for the stepwise introduction and integration of IPE, making the discussion of strategies for IPE timely and relevant.

Interprofessional Learning Experiences
Within CNU, an extensive infrastructure was designed to support the development, implementation, and logistics of a university-wide IPE plan through the CNU Institute for Teaching and Learning Excellence (ITLE). To achieve wide-ranging curricular goals in IPE, a university-wide IPE committee, the CNU IPE Committee was formed in 2015. The primary purpose of the CNU-IPE Committee was to act as an IPE think-tank at the university level, providing a platform for the development of IPE-specific university policy and procedures and overall curricular direction. Membership was inclusive and constituted CNU, College of Pharmacy; CNU, College of Medicine students, faculty, administrators; and CNU, College of Health Sciences faculty. Additionally, nursing faculty from the California State University, Sacramento School of Nursing (CSUS-SON) were available for consultation. In AY 2019-2020, IPE has also been introduced to newer programs such as the CNU, College of Psychology.

In February of 2020, the IPE Committee, under the leadership of Professor ForShing Lui, the Chair of the Clinical Sciences Department at CNUCOM, designed an IPE Grand Round activity (IPE-GR) (Appendix I). IPE-GR included students from the professions of medicine (M1), pharmacy (P3) and psychology (PSY2). The overall aim of this IPE Case Conference was the acquisition of the knowledge and skills for the interprofessional care and clinical management of stroke and transitions of care (TOC). Briefly, 96 M1, 129 P3, and 8 Psy2 (233) students participated in a Case-Based Learning IPE-GR in 11-13 membered interprofessional teams. IPE-GR unfolded in three phases: emergency room presentation, hospital admission, and discharge and facilitated the development of skills for 1) acute care management, 2) pathophysiology comprehension and pharmacotherapeutic management, 3) Transitions of Care (TOC), and 4) interprofessional teamwork and communication.

The activity was designed and implemented by a six-member IPE faculty team that included two CNUCOP faculty, two CNUCOM faculty, and one CNU Psychology faculty member under the leadership of CNUCOM faculty and the University's ITLE Director who also oversees the university IPE program. On the day of the IPE-GR, students assembled in pre-determined IPE teams of about 11 members each. IPE-GR commenced with a video of a patient presenting symptoms of acute stroke in an Emergency Room setting. The role of the CNUCOM students on the team was to help the pharmacy and psychology students gain familiarity with the process of patient evaluation and examination, including comprehension of the terms and details of diagnosis that physicians are experts at among the three participating professions. As the case progressed, CNUCOM students and CNU Psychology students learned elements of pharmacotherapeutic management of stroke, including pharmacoeconomics and the role of medication costs and medication reconciliation in case management from pharmacy students. Psychology students shared the role of a neuropsychologist in the post-emergency care of the more stabilized patient, including the early detection and management of depression, which is a well-documented comorbidity for stroke patients.

IPE-GR was evaluated with a multimodal assessment strategy. Mean scores on the 12-item post-activity test, which included equal evaluation and pharmacotherapeutic questions, were 95% (SD, 0.95) for pharmacy and 92% (SD, 0.90) for medical students. Eighty students (43 medical and 37 pharmacy; 34%) responded to the post-activity confidence survey, of which 98% of pharmacy students reported confidence in all four learning objectives, while 92% of medical students reported confidence for acute care management and recognition of Transitions of Care (TOC), and 95% confidence for pathophysiology and hospital management. Additionally, 21% of pharmacy and 7% of medical students reported complete confidence in TOC and pathophysiology respectively; 89% of medical and 84% of pharmacy students felt satisfied with IPE teamwork and communication, while 94% of medical and 89% of pharmacy students felt they understood the responsibilities of the other participating professions.

Overall, IPE-GR facilitated learning in the historically challenging interprofessional educational field of stroke and TOC management. In the coming years, we hope to continue and expand this pedagogy and committee as the CNU, College of Dental Medicine begins to matriculate students.

The Clerkship Curriculum (Phases B and C)

Table 5: Phase B Courses

Clerkship	Total Weeks	Inpatient	Outpatient
Family Medicine	6	0	6
Internal Medicine	8	4	4
Neurology	4	2	2
Obstetrics/Gynecology	6	3	3
Pediatrics	6	3	3
Psychiatry	4	2	2
Surgery	8	4	4
Emergency Medicine	4	0	4

The CNUCOM clerkship curriculum utilizes a distributed model, with students rotating at affiliated inpatient and outpatient clinical sites for both core clerkships (Phase B) and electives (Phase C) during their third and fourth years of study. Following a focused clinical skills retreat ("boot camp"), students embark upon their Phase B clerkships ranging from four to eight-week experiences in six core clinical specialties: Internal Medicine, Surgery, Psychiatry, Family Medicine, Obstetrics/Gynecology, and Pediatrics; and two required non-core clerkships in Neurology and Emergency Medicine, which can be deferred to allow students to choose electives in the third year. Students rotate through the core clinical clerkships in cohorts. After satisfactorily completing Phase B, students move on to Phase C, which requires that they complete at least 31 weeks of electives and selectives including a required four-week sub-internship in a general core specialty.

These advanced clinical elective experiences are tailored to provide a balanced education that includes students' career interests and exposure to other specialties. Therefore, the timing and sequence of Phase C experiences varies among students. Clerkship directors for all rotations are board-certified/eligible specialists and community faculty/preceptors overseeing student learning at clerkship sites who are educated on CNUCOM program learning objectives, clerkship-specific learning objectives, and core clinical content.

Phase B and C Rotation Sites
As CNUCOM does not have its own teaching hospital, we use a distributed clerkship model for clinical experiences where our students rotate at hospitals, clinics, and medical centers throughout California. These include large public, private, and HMO-affiliated hospitals as well as multi- and single specialty clinics and multi- and single provider practices. No longitudinal clinical experiences (i.e., longitudinal clerkships) are currently offered.

An ongoing challenge in designing and implementing clinical experiences for our medical students include identification of committed and enthusiastic community physicians (preceptors) in each specialty. These preceptors undergo required preceptor training in teaching, assessment, and development of clinical experiences. Through broad networking efforts, we have affiliations with many community clinics, hospitals, and committed faculty.

We have also established over 160 community-based "home" electives that students can choose, including experiences in Allergy, Dermatology, Cardiology, Endocrinology, Family Medicine, Family Medicine/Psychiatry, Integrative Medicine, Internal Medicine, Gastroenterology, Hematology, and Sports Medicine.

CNUCOM faculty and students currently work with over 80 hospitals and clinics during their clinical rotations. The number of sites varies per specialty; currently, our rotation sites are broken down as follows:

Table 6: Rotation Sites

Specialty	Number of Specialty Sites
Emergency Medicine	16
Family Medicine	22

Internal Medicine	16
Surgery	18
Neurology	18
Pediatrics	19
Psychiatry	21
OB/GYN	27

Student performance outcomes within the core clinical clerkships (Phase B) are assessed through subjective preceptor-derived evaluations as well as nationally standardized NBME ("Shelf") subject exams administered on the last day of each clerkship. During Phase C, students are subjectively assessed using standardized evaluations by clinical preceptors.

In addition to their active engagement in clinical care, clerkship students participate in regularly scheduled didactics during each clerkship. These didactics provide longitudinal integration and reinforcement of relevant basic science with patient management. Lastly, students in Phase C are also able to participate in interdisciplinary, non-clinical elective courses that provide opportunities for further development in research, leadership, professionalism, wellness, and pedagogy.

Curricular Changes for Continuous Quality Improvement

The Curriculum Committee is sensitive and remains responsive to the needs of students at all phases. The overall curriculum, individual courses and clerkships, and teaching faculty are regularly assessed by student evaluations at the end of every course or clerkship. Results of student evaluations are then shared to respective faculty, Course/Clerkship Directors, the Assistant Dean of Curriculum, Faculty Council Executive Committee, and finally the Dean through the Curriculum Committee to inform decision-making and continuous quality improvement. The CNUCOM curriculum review process is outlined below in Figure 2.

Figure 2: CNUCOM Curriculum Review Process

CNUCOM Vertical and Horizontal Curriculum Integration Infrastructure
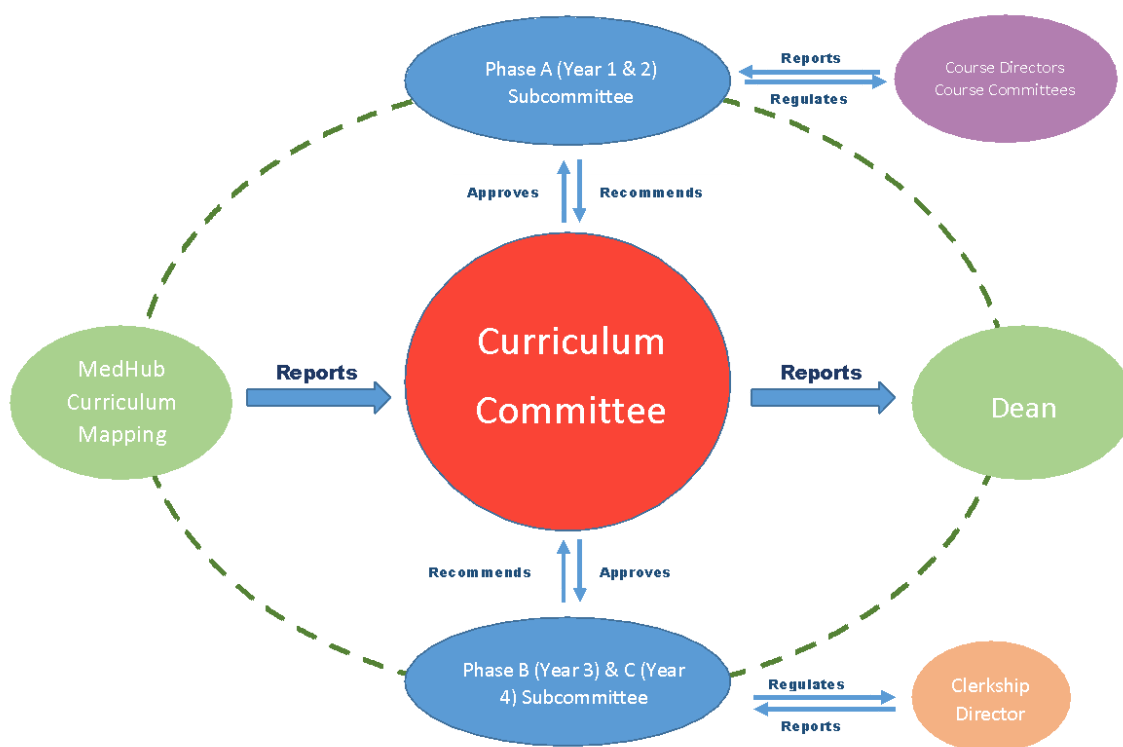
CNUCOM's Curriculum Committee is comprised of various stakeholders to ensure shared governance. Committees reporting to the Curriculum Committee are the Phase A, Phase B, and Phase C Subcommittees, as well as the Assessment and Evaluation Committee. From the Curriculum Committee, curricular proposals are presented to the Executive Committee of the Faculty Council who consult with the Dean to evaluate alignment with the University's mission, academic rigor, compliance with accreditation requirements, budgetary and programmatic feasibility, potential challenges, and short- and long-term impact on other programs. Approved recommendations are then transmitted to course directors, clerkship directors, elective/sub-internship preceptors and department chairs for consideration and implementation. The Curriculum Committee continually seeks input from course directors, clerkship directors, department chairs, faculty consultants, and medical students so that a broad consensus may be reached. Table 7 displays the names, types of appointments, and voting status of the current Curriculum Committee.

Table 7: CNUCOM Curriculum Committee Membership

Committee Member	Title	Appointment Type	Voting Status
Faculty Members			
Raj Ramsamooj, MD (Chair)	Professor; Assistant Dean of Curriculum	Dean appointed	non-voting
Valerie Gerriets, PhD (Vice Chair)	Assistant Professor; SDSSP Co-Course Director	peer-nominated	voting

Mark Sheffield, MD	Associate Professor; Endocrine Course Director	peer-nominated	voting
Vijay Khatri, MBChB	Assistant Dean of Faculty Affairs and Development	Dean appointed	voting
Tracy Yarbrough, MD	Associate Professor; Renal Course Director	peer-nominated	voting
John Cusick, PhD	Associate Professor; Foundations Course Director	peer-nominated	voting
Nazila Hejazi, MD	Assistant Professor; Hematology Course Director	Dean appointed	voting
Zahid Iqbal, MD	Assistant Professor; Internal Medicine Clerkship Director	peer-nominated	voting
Student Members (collectively 1 vote):			
Lillian Jundi	MS1	self-nominated, approved by Office of Student Affairs (OSA)	voting
Joyce Chen	MS1	self-nominated, approved by OSA	voting
Annaliese Elam	MS2	self-nominated, approved by OSA	voting
Vanessa Ho	MS2	self-nominated, approved by OSA	voting
Daanish Unwalla	MS3	self-nominated, approved by OSA	voting
Gabriel Beaudoin	MS3	self-nominated, approved by OSA	voting
Ex-Officio Members (all non-voting):			
Catherine Yang, PhD	Vice President of Academic Affairs; Associate Dean of Medical Education		non-voting
David Arenson, MD	Associate Professor; GI Course Director		non-voting
JoAnne Hansana	Financial Aid		non-voting
Juan Urbano Jr., PhD	Director of Assessment and Evaluation		non-voting
Michelle Walker	Registrar		non-voting
Peter Yip, MD	Chair of Clinical Medicine, Chair of Phase B Subcommittee		non-voting
Samantha Xiong	Curriculum Coordinator		non-voting
Scott Minor	Librarian		non-voting

Todd Gallagher	IT Director		non-voting

Examples of recent curricular changes implemented through the Curriculum Committee include 1) mandatory Student Interactive Learning Sessions (SILs) and 2) greater clerkship flexibility in *Neurology*. In response to student feedback requesting more interactive learning sessions and fewer traditional lectures, CNUCOM instituted the mandatory use of Clinical Case-Based Learning (CCBL) sessions as part of every course. To this end, the *Endocrine* block was completely converted to a SIL. The CCBLs are similar to Problem Based Learning (PBL) sessions where students are given a longitudinal case to work up on their own with facilitator support. They are required to identify their knowledge deficits and are given learning objectives, through self-directed learning. Students enjoyed the opportunity to interact with each other to address management of complex endocrine cases and felt the learning environment was better than traditional lectures. Feedback from students for this format have been uniformly positive and summative exam and final course grades for the Endocrine block were higher than for previous year's courses. This data reinforces innovative teaching modalities that can be adapted while improving overall student satisfaction and performance.

As a result of student feedback describing the travel and variability of Neurology clerkship sites, the 4-week clerkship was changed to a more flexible format. Of the four weeks, one was changed into an online virtual experience to include case presentations and allow for focused didactic sessions. The extra week of flexibility allowed for ease of scheduling and less travel to different sites. The remaining three weeks remained patient-care based.

Another critical component of the curricular review process, the Assessment and Evaluation Committee, periodically reviews evaluation data and presents curriculum-based suggestions to course/clerkship directors. Results from evaluations of faculty teaching effectiveness (based on student and faculty peer evaluations) are also provided to department chairs for discussion with individual faculty members at their yearly review. Table 8 lists the faculty, staff, and student representatives who make up the Assessment and Evaluation Committee.

Table 8: CNUCOM Assessment and Evaluation Committee

Committee Member	Role	Title
Dr. Jose Puglisi	Chair	Assistant Professor of Physiology and Biostatistics
Dr. Juan Urbano Jr.	Vice Chair	Director of Assessment and Evaluation
Dr. John Cusick	Faculty	Associate Professor; Foundations Course Director
Dr. David Arenson	Faculty	Associate Professor of Internal Medicine and Gastroenterology; GI Course Director
Dr. Sailabala Vanguri	Faculty	Assistant Professor of Anatomy
Dr. Thura Al-Khayat	Faculty	Assistant Professor of Ob/Gyn; Director of Medical Skills
Mrs. May Yang	Staff	Coordinator, Office of Medical Education
Ms. Annaliese Elam	Student	M2

Student evaluations have been instrumental in the reorganization of content delivery, particularly within Phase A, yielding courses that have proven to be more efficient and well-received by students and faculty alike. Based on student and faculty feedback, and in an effort to employ novel teaching modalities, CNUCOM introduced CCBL to the Phase A curriculum in AY 2017-2018. This method, a derivative of problem-based learning (PBL), was designed to be an interactive and student-directed component of the pre-clerkship curriculum, and utilizes virtual patient cases to scaffold learning of specific basic and clinical science content. Student satisfaction with this method has been high since its inception, as students enjoy the opportunity to apply newly acquired knowledge in this way. Additional efforts to increase active learning opportunities within Phase A include the use of classic and modified versions of team-based learning (TBL), problem-solving workshops, and collaborative testing.

The Curriculum Committee and its phase-specific subcommittees regularly monitor student performance on the USMLE Step Exams. These results are communicated to course directors and biomedical discipline representatives and are reviewed and discussed at the annual curriculum retreat typically occurring in the summer of each year. Areas identified for improvement are then incorporated into the plans for the relevant courses and/or clerkships in the upcoming cycle. In one of the reviews from Phase A, two areas of improvement were identified. From student evaluations, the first iteration of the *Cardiovascular and Pulmonary Systems* (CVP) course was thought to be sub-optimally organized. Also, national performance by USMLE Step 1 results showed the CVP was below the national average. The course was reviewed and changes to the structure and organization were made. With these changes, performance on exams and student satisfaction are improved. Another change is the student perception of "high value" teaching sessions. To this end, Phase A has tried to increase the number of interactive learning sessions to better engage our students in learning. One such course was the Endocrine block where many lectures were replaced with interactive learning sessions. Compared to the prior year, student performance on the NBME CAS summative exam improved.

Within Phase B and C, student evaluations of clerkships are completed at the end of each rotation and feedback is incorporated into the clerkships' yearly review cycle (see Appendix J for meeting minutes that discuss evaluations and improvement of Phase B and C clerkships). As in Phase A of the curriculum, student feedback has been important in the continuous improvement of clerkships; as an example, additional sites and breadth of clerkship experiences were identified and implemented through partnerships with new clinical affiliates as a result of initial student feedback on rotation sites in AY 2017-18.

Internal CQI and innovation of the curriculum is ongoing as CNUCOM continues to grow and develop. More recently, CNUCOM's ability to innovate due to the overwhelming influence of the pandemic is a testament to our ability to quickly adapt our curriculum.

Innovative Curriculum Development: Pandemic Elective
The current COVID-19 pandemic crisis has had a tremendous disruptive influence on delivery of both pre-clinical and clinical education. However, this disruption has also allowed rapid introduction and adoption of online education and reflection on the advantages and disadvantages of traditional methods of providing instruction. As hospitals react to recommendations from governmental agencies and educational associations, this has led to designation of medical students as "non-essential" team members who have been asked to take a voluntary pause in their clinical education. While these

recommendations are well-meaning from a safety perspective, they have to be balanced with the understanding that medical students are "professionals-in-training." Furthermore, this is an ideal opportunity for medical students to meaningfully engage not only in volunteerism but also directly in the healthcare space with direct-patient care and non-direct patient care activities. Direct involvement with pandemic-related clinical activities provides students the opportunity to observe and learn about health systems' approaches to disaster planning, resource allocation, crisis leadership, and understand organizational structure. Senior M4 students, who are only a few months from graduating and becoming interns can actively serve as teaching assistants thus acquiring skills in pedagogy that are valuable in developing them into "residents as educators." Pandemics therefore can serve as a vehicle for "disruptive innovation" in pedagogy.

These are unprecedented times. Although the necessary focus has been to care for patients and communities, the emergence of severe acute respiratory syndrome coronavirus 2 has disrupted medical education and requires intense and prompt attention from medical educators. The need to prepare future physicians has never been as focused as it is now in the setting of a global emergency. The profound effects of coronavirus disease 2019 (COVID-19) may forever change how future physicians are educated. Thus, CNUCOM has developed its *Pandemic Elective* as a response to COVID-19 affected pre-clerkship and clerkship learning environments by exploring potential implications of COVID-19 for the future of medical education.

Designed as online courses with a focus on pandemic infectious disease topics, the integrated curriculum includes pandemic infectious disease content in personal protective equipment (PPE), basic sciences, health systems impact, implementation of screening and triage, and behavioral sciences. Specifically, the online course includes:
1. Online training modules addressing the basic science of COVID-19 and its virology
2. Population statistics and disease progression with historical data from other pandemic infections
3. Review and understanding of CDC PPE guidelines
4. Online discussion groups to assess comprehension of content
5. Other published or online Pandemic education modules

The COVID-19 epidemic may represent an enduring transformation in medicine with the advancement of telehealth, adaptive research protocols, and clinical trials with flexible approaches to achieve solutions. There are many examples whereby learning from difficult experiences (e.g., emergence of HIV, response to disasters) changed discovery, science, and patient care. The *Pandemic Elective* can document and analyze the effects of current changes to learn and apply new principles and practices to the future. This is a time to contribute to the advancement of medical education in the setting of active curricular innovation and transformation and a seminal moment for many disciplines in medicine.

Student Learning and Success
CNUCOM has a learning outcomes structure that extends from course learning outcomes (CLOs) to program learning outcomes (PLOs) and institutional learning outcomes (ILOs). The learning outcomes are embedded within the curriculum and assessed in students' programs of study at points designated for development. Learning outcomes at all levels have corresponding rubrics that identify key indicators of achievement and varying levels of student performance.

Course Learning Outcomes

The Course Learning Outcomes (CLOs) are published in the syllabi for all courses including pre-clerkship courses and clerkship rotations. Summative NBME exam questions are mapped to disciplines and CLOs, allowing for reporting of overall student performance as well as specific performance as related to disciplines and CNUCOM CLOs. When average student performance on a given CLO is less than 70%, attainment of the outcome is considered to be at an "Initial" stage; if performance averages between 70%-79%, attainment is considered to be "Developed," between 80%-89% is considered "Proficient," and greater than 90% is considered "Outstanding." In review of each course and clerkship, the Assessment and Evaluation Committee reviews CLO attainment and identifies areas for improvement in its report to the course or clerkship director. The director can then utilize this data in post-course discussion and identify a plan of action if needed. A CLO performance table for the *Foundations of Clinical Medicine* (*CNUCOM 521*) course is provided below. Excerpts of course syllabi from M1 and M2 courses, an M3 clerkship, and an M4 elective with outlined CLOs are provided in Appendix K.

Table 9: CLO Performance for CNUCOM 521: Foundations of Clinical Medicine

Foundations	2015	2016	2017	2018
CLO 1	Proficient	Proficient	Proficient	Proficient
CLO 2	Proficient	Proficient	Proficient	Proficient
CLO 3	Proficient	Outstanding	Proficient	Proficient
CLO 4	Developed	Proficient	Proficient	Proficient
CLO 5	Proficient	Proficient	Proficient	Proficient
CLO 6	Developed	Developed	Proficient	Proficient
CLO 7	Proficient	Proficient	Proficient	Proficient
CLO 8	Proficient	Proficient	Developed	Proficient
CLO 9	Proficient	Proficient	Proficient	Proficient

In the short time that CNUCOM has been in operation, we have made great strides in making sure course lessons reflect CNUCOM's CLOs. As seen above in Table 9 for *Foundations of Clinical Medicine*, CLOs have never been below a "Developed" stage and the majority of CLOs have been "Proficient" since 2015. We find this to be the case for most Phase A courses which are documented in Appendix L of this report.

Program Learning Outcomes

Program learning outcomes (PLOs) for the CNUCOM MD program are:
1. **Patient Care.** Students must provide evidence-based care that is compassionate, appropriate, and effective for the promotion of health and treatment of illness. Students should be able to evaluate relevant diagnostic information.

2. **Medical and Scientific Knowledge.** Students must demonstrate knowledge about established and evolving biomedical and clinical sciences. They must showcase an ability to apply this knowledge to the practice of medicine. Students should be able to appraise and assimilate scientific evidence into their own ongoing learning, research, and patient care.

3. **Communication and Interpersonal Skills.** Students must demonstrate compassionate and effective interpersonal communication skills toward patients and families necessary to deliver effective medical care and promote shared decision making. Students must be able to articulate information and ideas (written and oral) in an organized and clear manner to educate or inform patients, families, colleagues, and community.

4. **Professionalism.** Students must demonstrate a commitment to the highest standards of professional responsibility and adherence to ethical principles. Students must display the personal attributes of compassion, honesty, integrity, and cultural competence in all interactions with patients, families, and the medical community.

5. **Healthcare Systems.** Students must demonstrate knowledge of and responsibility to the larger context of health care (social, behavioral, economic factors). They should have the ability to effectively call on system resources to provide optimal care.

6. **Reflective Practice and Personal Development.** Student must be able to reflect upon their experiences with the goal of continual improvement. They must also demonstrate habits of analyzing experiences that affect their well-being, relationships with groups and individuals. They must demonstrate self- motivation, and awareness and responsiveness to their own limitations.

Table 10 illustrates how Phase A courses are currently mapped to PLOs.

Table 10: Phase A Curriculum Mapping to PLOs

Phase A Course	PLO1: Patient Care	PLO 2: Medical and Scientific Knowledge	PLO3: Communication and Interpersonal Skills	PLO4: Professionalism	PLO5: Healthcare Systems	PLO6: Reflective Practice and Personal Development
Foundations of Clinical Medicine - COM 501	N/A	Developing	Developing	Developing	N/A	N/A
Hematology - COM 526	N/A	Developing	N/A	N/A	N/A	N/A
Integumentary & Musculoskeletal Systems - COM 511	N/A	N/A	N/A	N/A	N/A	N/A
Neuroscience - COM 551	Developed	Developed	Developed	Developed	N/A	N/A
Cardiovascular &	N/A	Developing	N/A	N/A	N/A	N/A

Pulmonary Systems - COM 531						
Renal System - COM 541	Developed	Developed	N/A	N/A	N/A	N/A
Gastrointestinal System - COM 521	Developed	Developed	Developed	Developing	Developed	N/A
Endocrine System Course - COM 571	Developed	Developed	Developed	Developed	N/A	N/A
Reproductive System - COM 581	Proficient	N/A	Proficient	Proficient	N/A	N/A
Behavioral Medicine - COM 561	Developed	Proficient	N/A	N/A	N/A	N/A
Stages of Life - COM 591	Developed	Developed	Developed	Developed	N/A	N/A
Masters Colloquium						
Fall M1- COM 611	Developed	N/A	Developed	Developed	N/A	Developed
Spring M1- COM 612	N/A	N/A	N/A	N/A	N/A	Developed
Fall M2- COM 613	Developed	Developed	Developed	Developed	N/A	Developed
Spring M2- COM 614	Proficient	Proficient	Proficient	Proficient	Proficient	Developed

Overall, for Phase A, most courses are either "Developed" or "Proficient." These assessments are paralleled in the success our students have experienced in their clerkships and required USMLE examinations, covered in Appendix M. A number of courses are not mapped to certain PLOs as indicated by an "N/A." This is a faculty made decision to focus PLOs on content that will be thoughtfully and carefully covered throughout specific courses rather than force all course directors to include PLOs that are not relevant or covered in-depth throughout their course. We currently do not have plans to change this format because Phase A students are required to complete all the courses listed above, thus they will experience each PLO in a highly rigorous manner before their clinical curriculum begins. The following table demonstrates the success CNUCOM has had with mapping our Phase B and C clerkships to our PLOs.

Table 11: Phase B and C Clerkship Mapping to PLOs

Phase B Clerkships	PLO1: Patient	PLO 2: Medical and Scientific	PLO3: Communication and	PLO4: Professionalis	PLO5: Healthcar	PLO6: Reflective Practice and

	Care	Knowledge	Interpersonal Skills	m	e Systems	Personal Development
Emergency Medicine Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Family Medicine Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Internal Medicine Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Neurology Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Obstetrics & Gynecology Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Pediatric Clerkship	Developed	Developed	Developed	Proficient	Developed	Developed
Psychiatry Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Surgery Clerkship	Developed	Developed	Developed	Developed	Developed	Developed
Phase C Advanced Clerkships (Electives and Sub-Internships)	PLO1: Patient Care	PLO 2: Medical and Scientific Knowledge	PLO3: Communication and Interpersonal Skills	PLO4: Professionalism	PLO5: Healthcare Systems	PLO6: Reflective Practice and Personal Development
	Developed	Developed	Developed	Developed	Developed	Developed

The quick rise of clerkships to "Developed" or "Proficient" levels can be attributed to the CNUCOM Phase B and C Directors (Dr. Yip and Dr. Khatri), Clerkship Directors, and Clerkship Coordinators who lead clerkships for third year (M3) and fourth year (M4) students. The growing number of clerkship sites and overwhelmingly positive assessments by preceptors is indicative of successful development in this area.

Institutional Learning Outcomes

The CNUCOM Institutional Learning Outcomes (ILOs) are the core competencies expected of all students at CNU. Each learning outcome is focused on the essential knowledge, skills, attitudes, and values needed for students to become successful health professionals. The ILOs were developed with faculty input, are published on the University website, and posted in classrooms and corridors throughout the institution.

1. **Critical thinking**. Exercise reasoned judgement to assess technical information and make well-informed decisions using evidence-based approaches.
2. **Written communication**. Demonstrate the ability to write coherent, supported, and logically structured prose.
3. **Oral communication**. Demonstrates oral communication skills.
4. **Professionalism**. Interact with respect, empathy, diplomacy, and cultural competence.
5. **Quantitative reasoning**. Demonstrate ability to use mathematics and statistics in problem solving.
6. **Information literacy**. Identify and search relevant libraries of information and databases; synthesize information obtained from primary literature using properly referenced citations.

The table below illustrates how our students are performing relative to PLOs and ILOs.

Table 12: Student Performance Mapping on PLOs and ILOs

	ILO-1 -Critical Thinking	ILO-2- Written Communication	ILO-3- Oral Communication	ILO-4 Professionalism	ILO-5 Quantitative Reasoning	ILO-6 Information Literacy
PLO-1-Patient Care (PC)	N/A	Developed	Developed	N/A	N/A	N/A
PLO-2-Medical & Scientific Knowledge (MSK)	Developed	N/A	N/A	N/A	Developed	Developed
PLO-3-Communication & Interpersonal Skills (CIS)	N/A	Developed	Developed	N/A	N/A	N/A
PLO-4-Professionalism (P)	N/A	N/A	N/A	Proficient	N/A	N/A
PLO-5- Health Care Systems (HC)	Proficient	N/A	N/A	N/A	Proficient	N/A
PLO-6-Reflective Practice & Personal Development (RP)	Developed	N/A	Developed	N/A	Developed	N/A

In our assessment of course scores and PLOs, students are being highly trained in line with ILOs. In each category where PLOs and ILOs intersect, each is ranked as "Developed." Notably, assessment of PLOs in the *Healthcare Systems* and *Professionalism* courses are "Proficient." We believe this is attributed to the quality of our teaching and the time our faculty members and leadership has put into *Medical Skills* and *Masters Colloquium*. As with all course mapping, we do not force faculty to ensure that every PLO is mapped to every ILO. Instead, we rigorously examine each PLO and make sure that they are carefully and thoughtfully mapped to the ILOs at certain points in the coursework. Over the

course of their training, each CNUCOM student is exposed to and required to demonstrate achievement of learning outcomes at the "Developed" level or above.

Assessment of Student Learning

Being a young university has allowed CNUCOM to be innovative in its assessments of student learning and performance. In the following sections, we illustrate quantitative and qualitative results from the following direct and indirect assessments: grade distributions, NBME Summative Exams, USMLE Step 1, 2 Clinical Knowledge (CK), 2 Clinical Skills (CS), and 3 scores, Shelf exams, preceptor evaluations, student evaluations, and comparability studies across clerkships. With each new class, clear student achievement and improvement is demonstrated. Areas of improvement and/or needed data have also been identified.

Course Outcomes for Phase A

<u>*Performance Distributions*</u>

Each semester, a grade distribution report is routinely compiled as part of the process to evaluate and establish students' "Satisfactory Academic Progression" within each course and across phases of the curriculum. The data is presented to the Phase A Subcommittee and Curriculum Committee, and subsequently at annual curriculum retreats. The following is an example of comparison data from the most recently completed academic years. Figure 3 illustrates the average grades for each of the courses that students take as part of the M1 curriculum. In their first year, M1s are required to take and pass *Foundations, Hematology, Musculoskeletal & Integumentary Systems* (MSK), *Neuroscience*, and *Cardiovascular & Pulmonary Systems* (CVP) courses. Student performance has been consistent year-over-year, as reflected in the percentage of students passing each course. Note that the class of 2023 had not yet completed courses beyond the CVP course at the time of this assessment so grades are not listed for that cohort. Overall, most classes have maintained the same level of performance. In nearly all cases, the classes of 2020-2023 have outperformed the inaugural class of 2019.

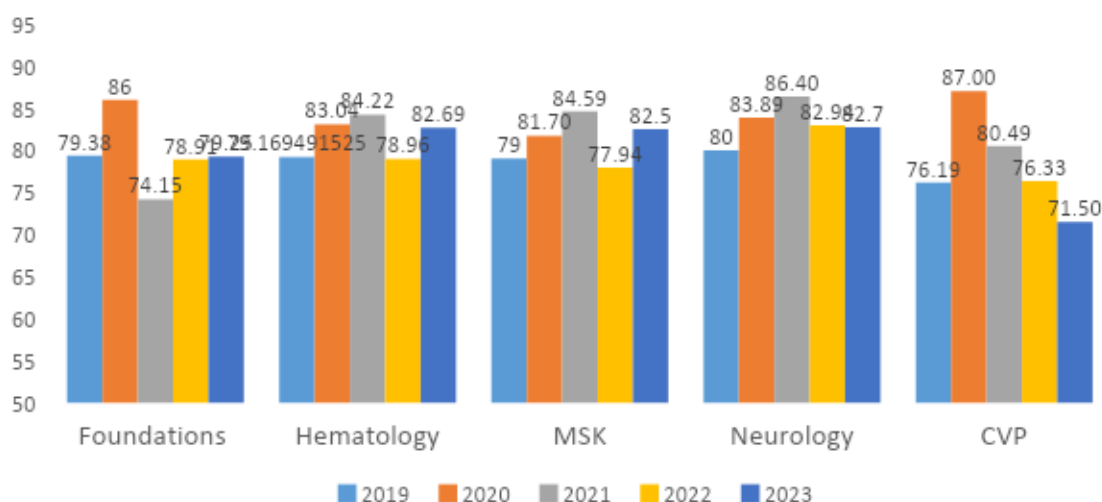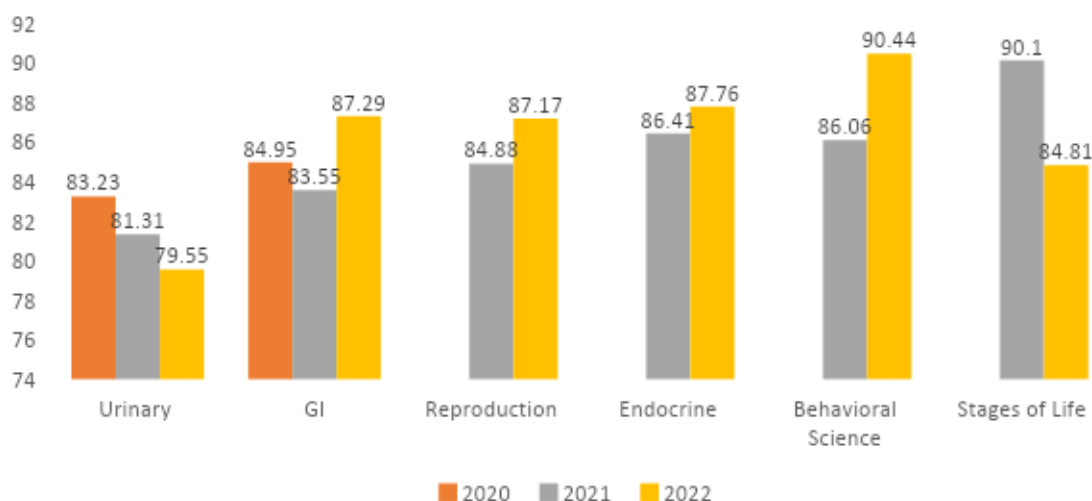*Figure 3: Year 1 (M1) Grade Distribution*

M1 Grades Distribution

Legend: 2019, 2020, 2021, 2022, 2023

Foundations: 79.38, 86, 74.15, 78.9, 79.25
Hematology: 79.16, 83.04, 84.22, 78.96, 82.69
MSK: 79, 81.70, 84.59, 77.94, 82.5
Neurology: 80, 83.89, 86.40, 82.98, 82.7
CVP: 76.19, 87.00, 80.49, 76.33, 71.50

Figure 4: Year 2 (M2) Grade Distribution

M2 Grade Distributions

Legend: 2020, 2021, 2022

Urinary: 83.23, 81.31, 79.55
GI: 84.95, 83.55, 87.29
Reproduction: 84.88, 87.17
Endocrine: 86.41, 87.76
Behavioral Science: 86.06, 90.44
Stages of Life: 90.1, 84.81

Class of 2020 scores are not included for the Reproduction, Endocrine, Behavioral Science, and Stages of Life courses because they were not offered in 2016 (M2 for this class) and the curriculum has since changed. However, with the data that we have from the first three classes, M2 cohorts are performing comparably across courses. This is perhaps due to the evolution of M2 curriculum and required courses from those delivered to the classes of 2019 and 2020, based on student and faculty feedback and in an effort to more closely align coursework with the PLOs and student learning needs. For example, the class of 2022's average performance in the *Gastrointestinal System* (GI) course is higher than previous cohorts. Contextually, in AY 2019-20, a new GI course director was hired; early student performance and feedback suggest that this change has had a positive impact on the course. See Appendix N for all previous years and individual courses disaggregated by year. Finally, in comparing the two most recent classes (2021 and 2022) that have completed the M2 requirements, the class of 2022 outperforms the class of 2021 in 4 out of 6 courses. The overall improvement in grades throughout the Phase A

(pre-clinical) curriculum is primarily credited to our faculty recruitment and retention as well as our increasingly sophisticated admissions process.

Phase A Final NBME Summative Exams

CNUCOM uses the NBME CAS (National Board of Medical Examiners Customized Assessment Services) as summative assessments for our organ systems-based courses. These exams are designed to assess the relevant content, employ the format of the United States Medical Licensing Exam (USMLE) series, and provide national benchmarks for student achievement. Figure 5 below illustrates the average score on comprehensive summative NBME CAS exams by course for each of our classes of students.

Figure 5: NBME Phase A Summative Exam Scores
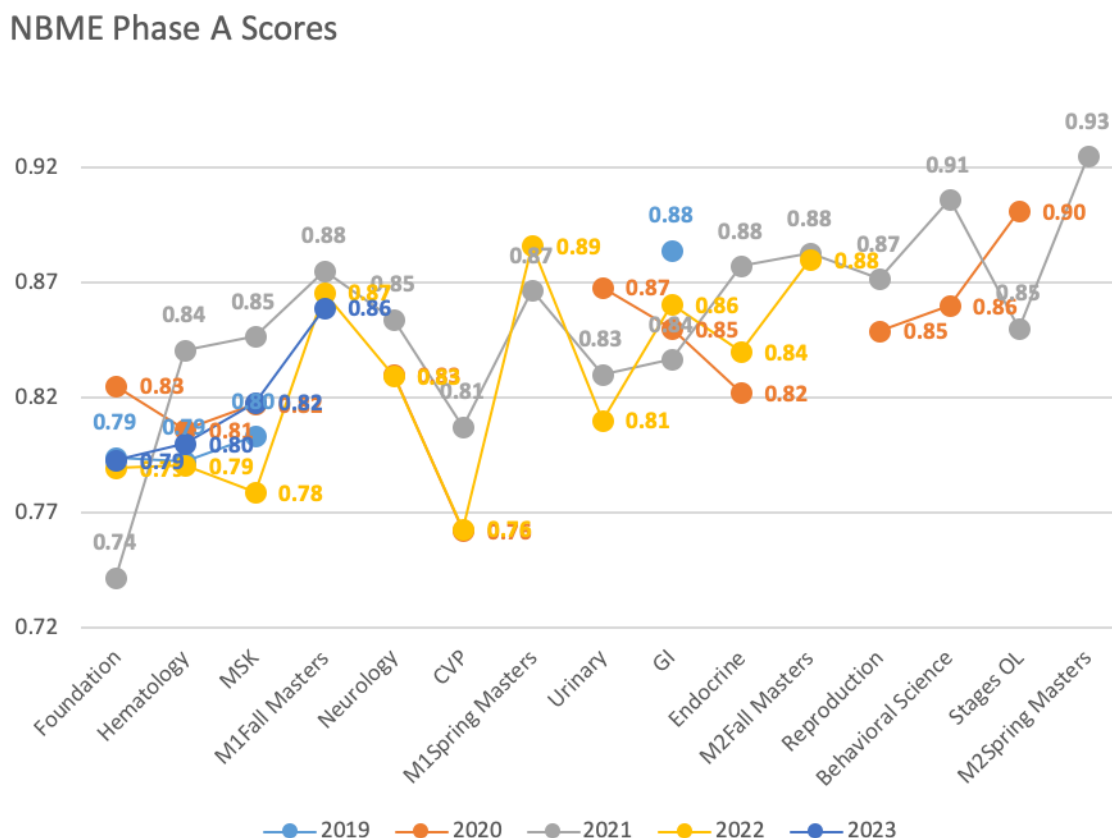
Note that the class of 2019 was only assessed using NBME CAS summative exams for some courses. Starting with the class of 2020, CNUCOM instituted uniform implementation of NBME CAS exams as the primary summative assessment for Phase A courses and students' average scores have consistently exceeded 70%, with the majority hovering at or above 85%. NBME CAS questions are taken from "retired" USMLE Step 1 exams which provides insight into how students will perform on similar questions when they take the Step 1 exam. In nearly all Phase A courses for AY 2019-2020, CNUCOM students outperformed all USMLE Step 1 exam takers on the same questions (Appendix M).

Course Outcomes for Phase B

Performance Distributions

The figures below illustrate grade distributions for our two classes of students (2019 and 2020) that have completed Phase B of the CNUCOM curriculum.

Figure 6: Class of 2019 Clerkship Student Grade Distributions

Class of 2019 Clerkship Student Grade Distributions
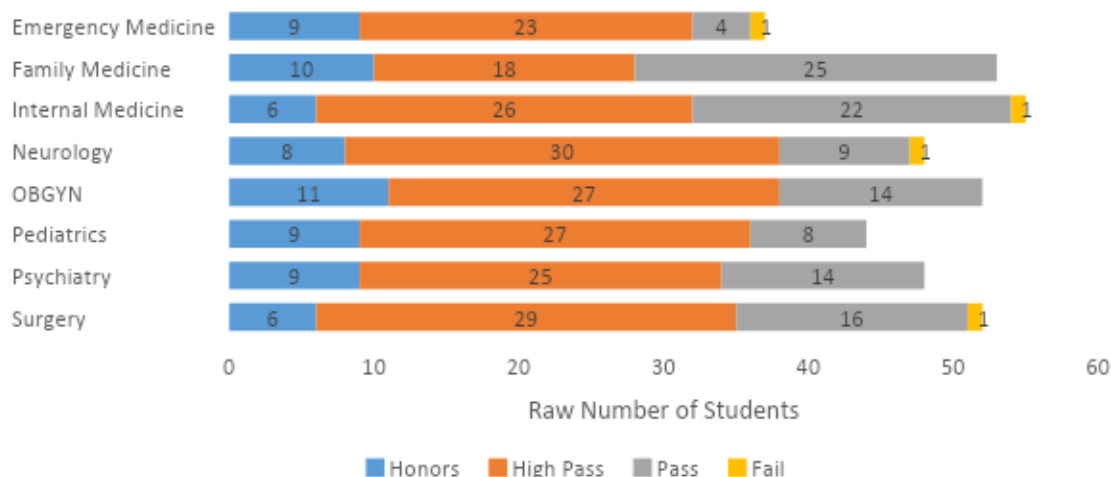
Figure 7: Class of 2020 Clerkship Student Grade Distributions

Class of 2020 Clerkship Student Grade Distributions
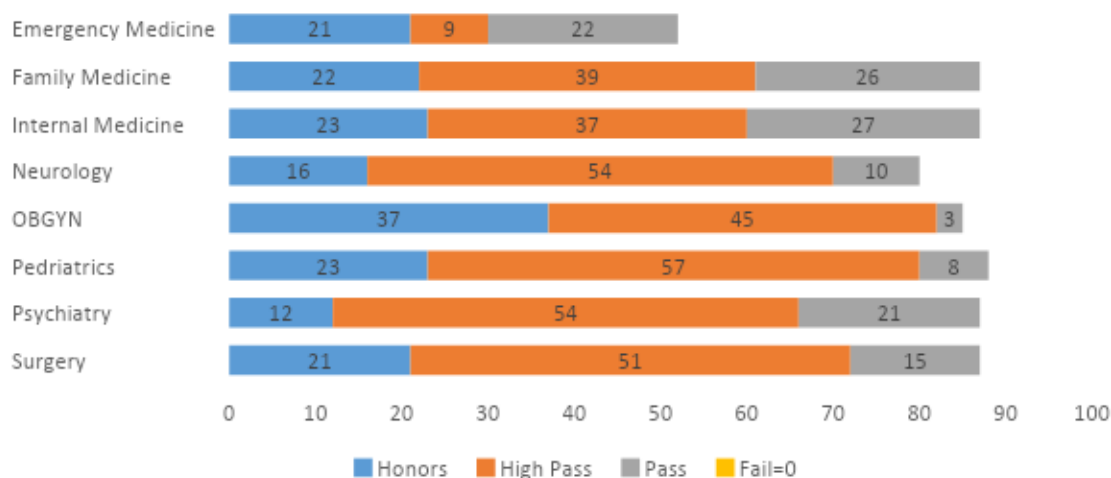
CNUCOM has shown consistent improvement in Phase B grade distributions from our first class in 2019 to our second graduating class in 2020. Notably, there were no students who failed clerkship courses in 2020, there were more students who passed with honors among the class of 2020 in each of the specialties, and 40% of students from the class of 2020 received honors in their Obstetrics/Gynecology clerkship.

Phase B Final NBME Summative Exams

To better understand how our students are performing, we also examine our Phase B student performance on summative final NBME "Shelf" exams, which are used across the nation to assess medical students at the end of each clinical clerkship. Student achievement on Shelf exams mirrors grade distribution trends, as the class of 2020 out-performed the class of 2019 across clerkship specialties. We also have preliminary data that shows similar results for the class of 2021 that have already taken their Shelf exams. Thus far, the class of 2021 is scoring at or just below the class of 2020. Still, there is a clear trend that illustrates improvement since our inaugural class of 2019. Additionally, in each of the clerkship areas, all students have consistently performed at 70% or above.

Figure 8: Class of 2019-2021 Average NBME Shelf Exam Scores by Specialty
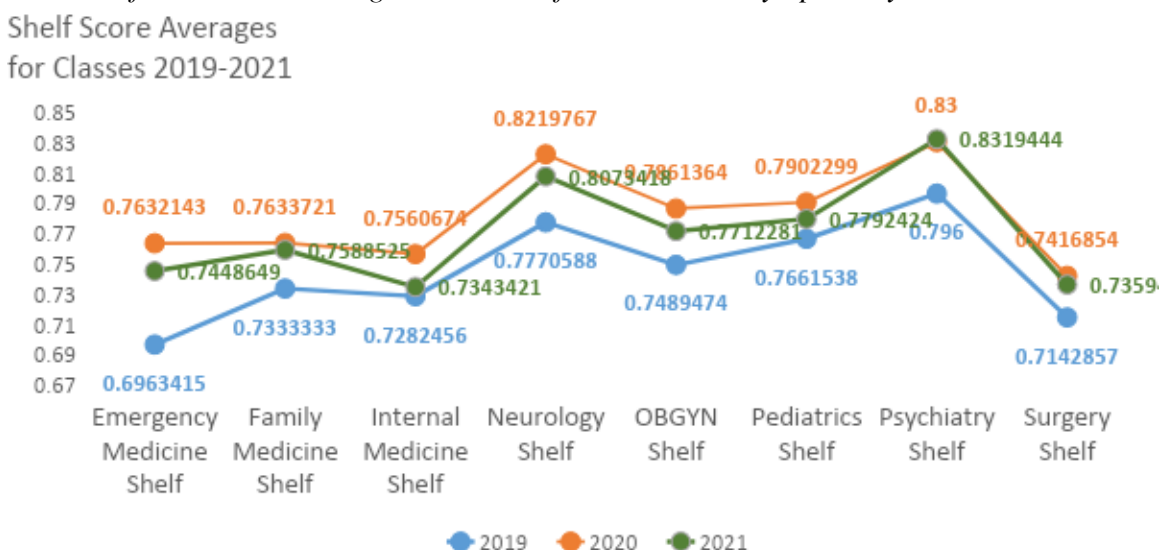

Clerkship Comparability

In addition to the evaluation of Phase B and C clerkships relative to programmatic and institutional learning outcomes, clerkships are assessed based on uniformity of student experience. This allows CNUCOM to ensure that clerkships are globally aligned with PLOs.

There are five critical assessments CNUCOM monitors to determine the success of our clinical rotation sites, including: Shelf exam scores, must-see cases, student evaluation of sites, student evaluation of preceptor, and preceptor evaluation of students. Perhaps most important when evaluating these assessments is how sites for students compare to other sites for other students. We measure this through a yearly comparability study.

In this study, we attempt to compare the sites at which our students rotate most frequently, combining data from sites with smaller numbers of student experiences within an "Other" category. Analyses are performed to ensure that students have fair and equivalent opportunities for experiences and assessment regardless of their clerkship site, in spite of the nuanced differences inherent in clinical sites that are widely distributed geographically and in differing organizational contexts. Scores for each criterion (parameter) are analyzed by the Director of Assessment and Evaluation to determine their relationship

by site. For example, Internal Medicine NBME Shelf exam scores are analyzed to identify possible correlations to Internal Medicine clerkship sites, and average student evaluation scores by preceptors are analyzed to see if there are statistically significant relationships with clerkship sites.

Out of 40 individual analyses (5 assessments x 8 specialties) performed to determine site comparability, 8 assessment scores displayed statistically significant variability (<0.05). These eight statistically different assessments are displayed in the figures below.

a. Shelf-Exams

Figure 9: Neurology NBME Shelf-exam Scores
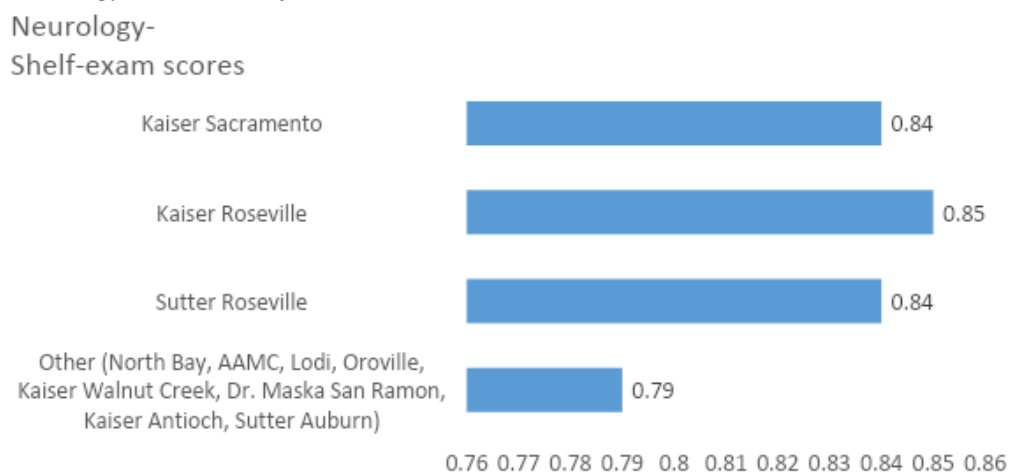
Neurology was the only specialty area where there was a statistical difference in NBME Shelf exam scores between sites. The analysis indicated that students who rotated at Kaiser Roseville had significantly higher Neurology Shelf exam scores than students that rotated at "Other" sites (which includes North Bay, AAMC, Lodi, Oroville, Kaiser Walnut Creek, Dr. Maska San Ramon, Kaiser Antioch, Sutter Auburn).

b. Must-See Cases
There were no statistical differences between sites and specialties for must-see cases at the time of the comparability study.
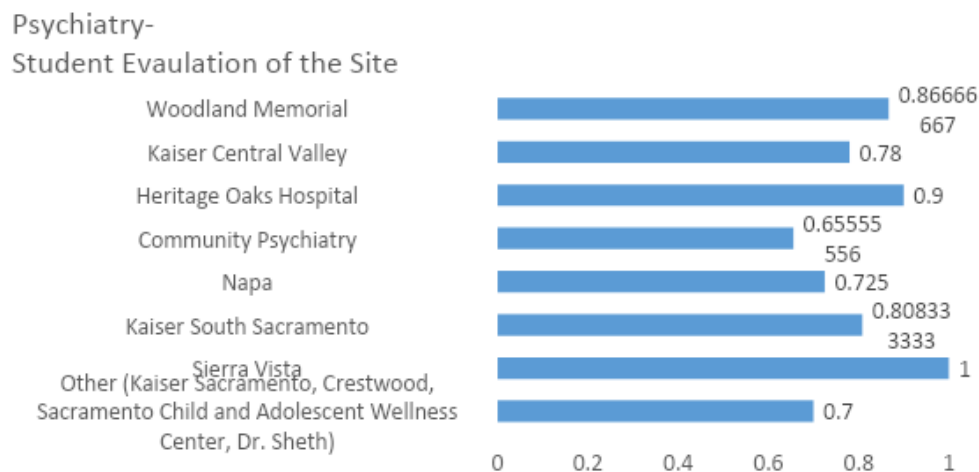
c. Student Evaluations of Site
Using the MedHub platform for student surveys, students are issued surveys that include questions related to their experience and treatment upon completion of their rotation.

Figure 10: Student Evaluations of Psychiatry Sites

Psychiatry-
Student Evaulation of the Site

Woodland Memorial — 0.86666667
Kaiser Central Valley — 0.78
Heritage Oaks Hospital — 0.9
Community Psychiatry — 0.65555556
Napa — 0.725
Kaiser South Sacramento — 0.808333333
Sierra Vista — 1
Other (Kaiser Sacramento, Crestwood, Sacramento Child and Adolescent Wellness Center, Dr. Sheth) — 0.7

Analysis of student evaluations revealed a clear statistical difference between Psychiatry sites. Specifically, students who rotated at the Sierra Vista site reported significantly more positive experiences when compared to students who rotated at Napa, Community Psychiatry, Kaiser Central Valley, and "Other" (Kaiser Sacramento, Crestwood, Sacramento Child and Adolescent Wellness Center, Dr. Sheth) sites. This an issue that has been relayed to the Psychiatry Clerkship Director for development of an action plan to improve sites with scores below the overall mean of 80% satisfaction.

d. Student Evaluations of Preceptors

Evaluations of preceptors are also completed by students at the end of their rotation through MedHub. This assessment is used to measure whether students feel they are being fairly treated and graded during their clinical rotation. The analysis demonstrated two specialties with statistical differences: Family Medicine and Psychiatry, as shown in the figures below.

Figure 11: Student Evaluations of Family Medicine Preceptor(s)

Family Medicine-
Student Evaluation of Preceptor(s)

San Joaquin General Hospital — 0.87789289
Kaiser Modesto/Stockton — 0.91060964
Rocklin Family and Sports Medicine (Rocklin) — 0.99814815
Other (Kaiser North (Roseville), Elevation Physicians (Folsom), Natomas Family Medicine (north Natomas), Hayne Kelada Family Medicine (Roseville), Kaiser Diablo Service Area (Walnut Creek), Stewart Medical Group (Alhambra), Pamajit Panesar MD (Elk Grove), — 0.9241944

Students reported high satisfaction with preceptors at all sites. However, students who rotated at the Rocklin Family and Sports Medicine Clinic had significantly higher overall satisfaction (99.8%) with their preceptors than students who rotated at San Joaquin General Hospital (87.8%).

Figure 12: Student Evaluations of Psychiatry Preceptor(s)

Psychiatry-
Student Evaluation of Preceptor(s)

Site	Score
Woodland Memorial	0.8005952
Kaiser Central Valley	0.8778119
Heritage Oaks Hospital	0.952833
Community Psychiatry	0.7811709
Napa	0.7787516
Kaiser South Sacramento	0.7822508
Sierra Vista	0.98355
Other (Kaiser Sacramento, Crestwood, Sacramento Child and Adolescent Wellness Center, Dr. Sheth)	0.6332008
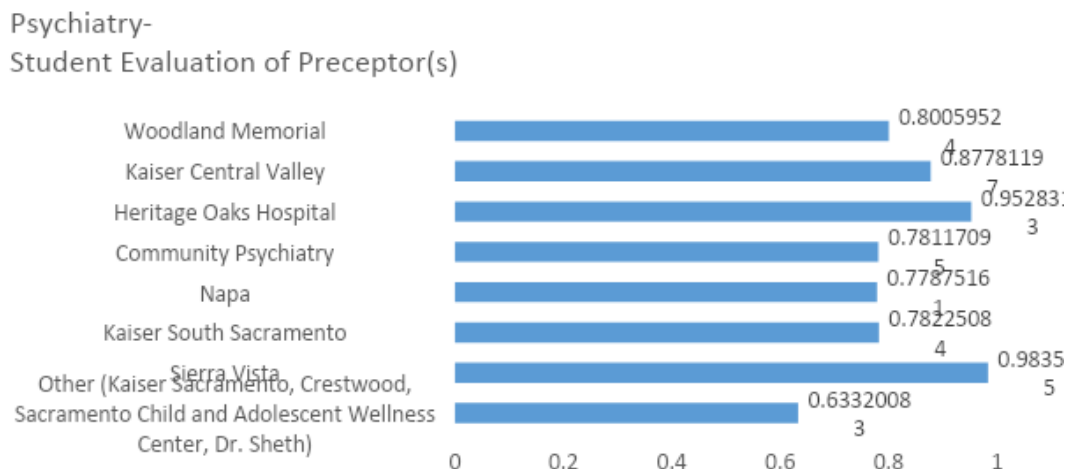
There were also statistical differences between student satisfaction of preceptors at Psychiatry rotation sites. Students who rotated at Sierra Vista had significantly higher satisfaction with preceptors (98.4%) than students who rotated at Napa (77.9%), Community Psychiatry (78.1%), Woodland Memorial (80.1%), and "Other" (63.3%) sites. Also, students who rotated at Heritage Oaks Hospital (95.3%) and Kaiser Central Valley (87.8%) had significantly more positive overall satisfaction with their preceptors than students who rotated at "Other" (63.3%) sites.

e. Preceptor Evaluations of Students

Throughout clerkship rotations, CNUCOM preceptors can periodically evaluate and track student progress through the MedHub portal. Student scores are then aggregated in MedHub and distributed to preceptors upon conclusion of rotations. This data is ultimately used to determine student grades as well as identify strengths and weaknesses. Analysis of preceptor evaluations of students showed the most variability within four specialties (Emergency Medicine, Family Medicine, Internal Medicine, and Psychiatry), displaying the largest statistical differences between sites in this study.

Figure 13: Emergency Medicine Preceptor Evaluations of Students

Emergency Medicine-
Preceptor Evaluation of a Student

Site	Value
Kaiser Roseville	0.594 0476 2
Kaiser South Sacramento	0.653 8461 5
Sutter Sacramento	0.716 6666 7
Other (AHMC El Monte, AHMC Alhambra, Kaire Modesto, Sutter Roseville, Woodland Memorial, Lodi Memorial, Kaiser Fresno, Kaiser South San Francisco)	0.766 3690 5
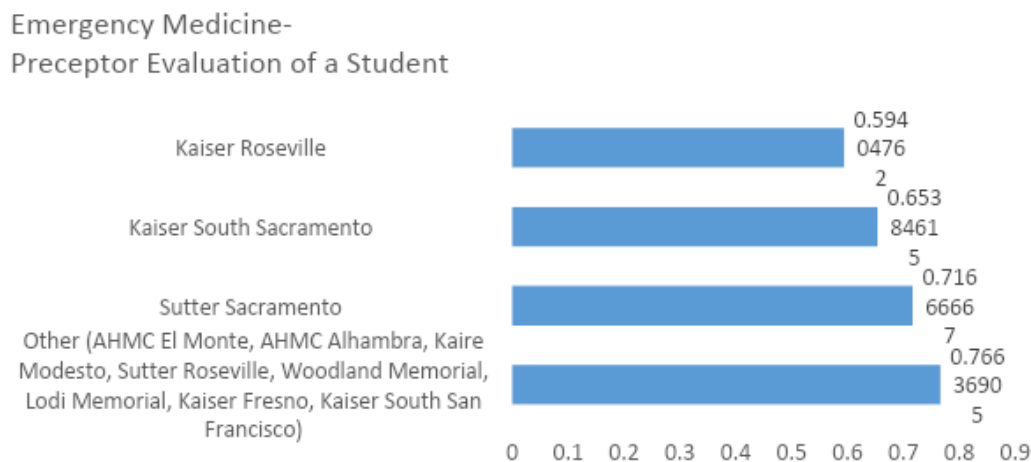
Within Emergency Medicine, preceptors of students who rotated at "Other" sites (AHMC El Monte, AHMC Alhambra, Kaiser Modesto, Sutter Roseville, Woodland Memorial, Lodi Memorial, Kaiser Fresno, Kaiser South San Francisco) rated students significantly higher (76.6%) than students who rotated at Kaiser Roseville (59.4%). Preceptor ratings of students in Emergency Medicine are lower overall than for all other specialties and is an area for further study.

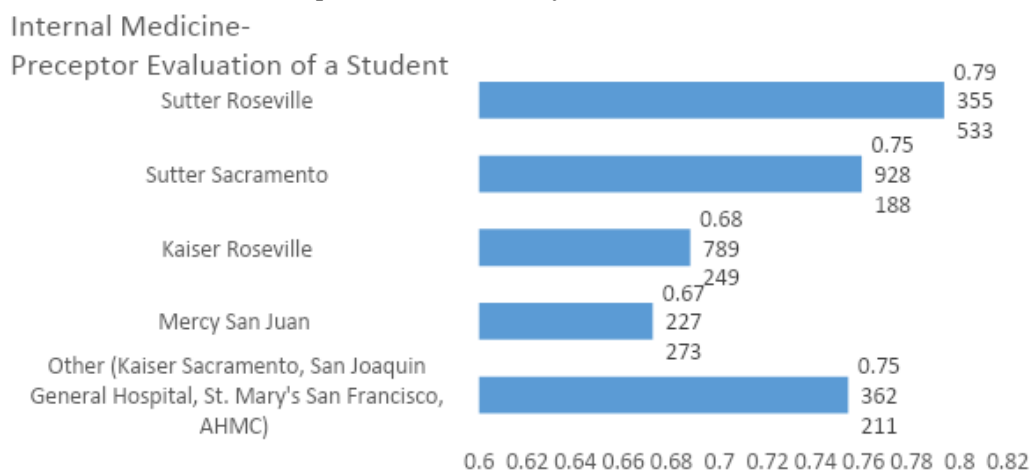*Figure 14: Family Medicine Preceptor Evaluations of Students*

Family Medicine-
Preceptor Evaluation of a Student

Site	Value
San Joaquin General Hospital	0.87 789 289
Kaiser Modesto/Stockton	0.91 060 964
Rocklin Family & Sports Medicine	0.99 814 815
Other (Mark Vaughan MD (Auburn Medical Group),Kaiser Fresno, Pamajit Pansear Elk Grove, Stewart Medical Group, Kaiser Diablo Service Area, Joseph Kelada FM, Hayne Kelada FM, Natomas FM, Elevation Physicians, Kaiser North)	0.92 419 44

Within Family Medicine, students who rotated at Rocklin Family & Sports Medicine received a significantly more positive average rating (99.8%) than students at San Joaquin General Hospital (87.8%). Notably, Family Medicine preceptor evaluations of students mirrored students' evaluations of their preceptors at these sites as seen in Figure 11 above. These results indicate a positive correlation between student and preceptor experiences at Family Medicine sites.

Figure 15: Internal Medicine Preceptor Evaluations of Students

Students who rotated in Internal Medicine at Sutter Roseville received a significantly higher average rating (79.4%) than students who rotated at Mercy San Juan (67.2%) and Kaiser Roseville (68.8%).

Figure 16: Psychiatry Preceptor Evaluations of Students
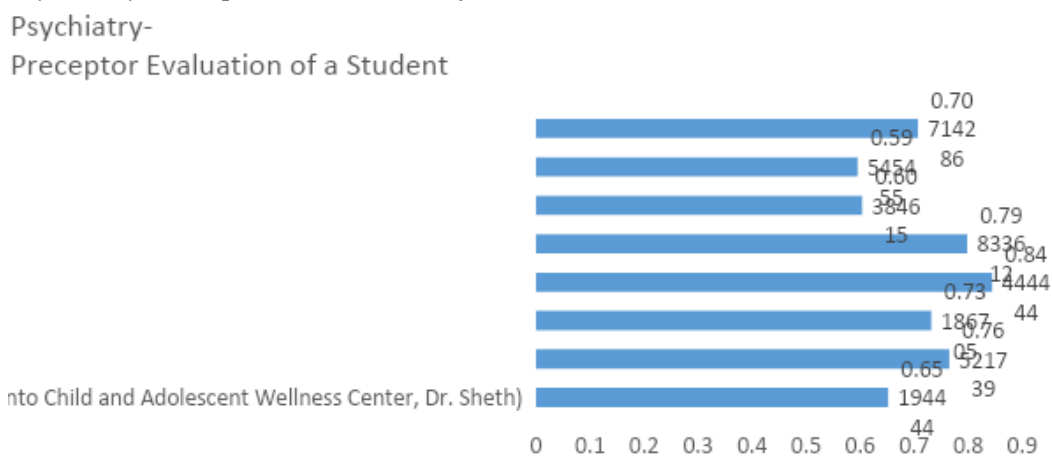
Lastly, within Psychiatry rotation sites, preceptors at Sierra Vista expressed a statistically significant and higher rating of students (76.5%) than preceptors at Heritage Oaks Hospital (60.4%) and Kaiser Central Valley (59.5%). Additionally, preceptors at Napa (84.4%) and Community Psychiatry (79.8%) indicated statistically significant and higher average ratings of students than preceptors at Kaiser Central Valley (59.5%). In review of the comparability study, these scores represent the largest disparity between ratings and the Psychiatry specialty reveals more overall variability than other specialties. Review of student satisfaction of sites (Figure 10), student evaluations of preceptors at these sites (Figure 12), and preceptor evaluation of students (Figure 16) at Psychiatry sites are areas of further study and investigation.

We continue to discuss these findings with appropriate Clerkship Directors and are striving to fine tune assessments to provide data-driven program improvements for students. These trends and differences have been forwarded to Clerkship Directors for further analysis in terms of feedback and continuous improvement at clerkship sites. In addition, these analyses will provide further context for differences in student grading. For complete statistical tables and analysis of the comparability study, see Appendix O.

USMLE Scores

The USMLE Step 1, Step 2 CK and CS exams provide data regarding the success of our students and curriculum relative to other medical schools across the country. Step 1 is taken by our students at the completion of 2 years of coursework, i.e. at the completion of the Phase A curriculum and just before the start of Phase B. Step 2 CK and CS exams are taken during the 3rd and 4th years of training, with the timing of their examinations determined by ongoing assessments and based on faculty recommendations.

In the short time since CNUCOM's inception, our students' performance on these critical exams has been outstanding. The inaugural graduating class of 2019 performed exceptionally well. With a mean score of 227, they ranked #27 nationally compared to all other medical schools. In addition, subsequent classes have demonstrated improved mean scores each year.

Table 13: USMLE Step 1 Results

USMLE Step 1	2017	2018	2019
Number of test takers	57	87	73
Number Passed	54	86	73
Percent Passing	95	99	100
Mean score (national mean)	227 (229)	235 (230)	238 (231)

The table above illustrates that the percentage of students that have taken and passed the Step 1 test, which has improved with each year.

Figure 17: USMLE Step 1 Scores
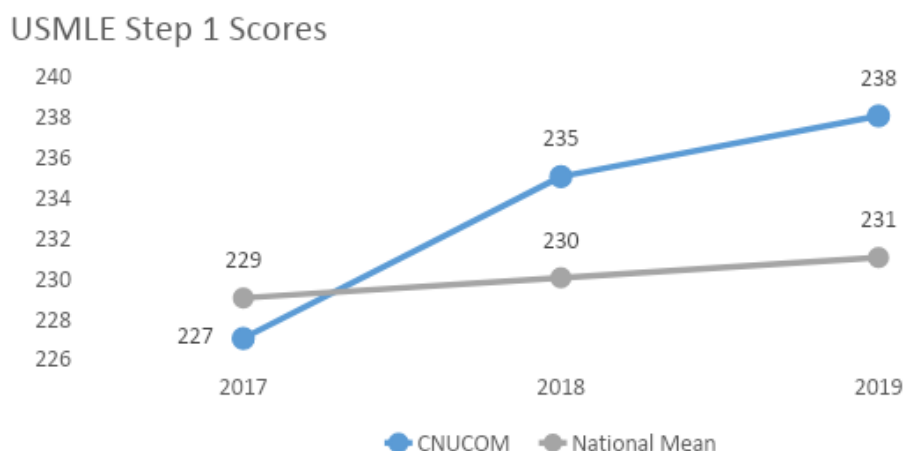
The figure above illustrates CNUCOM's improvement trend in regards to Step 1 scores. Among the most recent cohort of students that took the exam, 100% of students (73 out of 73) passed with an average score of 238, our highest average to date and well above the national mean of 231.

CNUCOM's Step 1 scores are comparable to established universities with a history of successful medical programs. The figures below illustrate how CNUCOM's first two graduating cohorts performed when compared to other universities in 2017 and 2018.

Figure 18: USMLE Step 1 Performance Summary (2017)

U.S. Ranking	University	Step 1 Mean Score
16	Icahn School of Medicine at Mount Sinai	237
17	Boston University	237
18	University of Pittsburgh	236
19	University of Texas Southwestern Medical Center	236
20	Johns Hopkins University	235
21	University of Virginia	234
22	University of California – San Francisco	233
23	University of Michigan – Ann Arbor	233
24	University of California – San Diego	232
25	Emory University	232
26	University of California – Los Angeles	230
27	University of Wisconsin - Madison	226
28	Oregon Health and Science University	226
29	University of Washington	224
30	University of California	224

In 2017, the inaugural graduating class had a mean Step 1 score of 227, meaning CNUCOM would have ranked 27th in the nation, just above long-standing and well-respected University of Wisconsin-Madison's Medical School. Subsequently, the class of 2020 continued this outstanding trend by outperforming the inaugural class and producing a mean Step 1 score of 235.

Figure 19: USMLE Step 1 Performance Summary (2018)

U.S. Ranking	University	Step 1 Mean Score
16	Icahn School of Medicine at Mount Sinai	237
17	Boston University	237
18	University of Pittsburgh	236

19	University of Texas Southwestern Medical Center	236
20	Johns Hopkins University	235
21	University of Virginia	234
22	University of California – San Francisco	233
23	University of Michigan – Ann Arbor	233
24	University of California – San Diego	232
25	Emory University	232
26	University of California – Los Angeles	230
27	University of Wisconsin - Madison	226
28	Oregon Health and Science University	226
29	University of Washington	224
30	University of California	224

Compared to other school averages, we would have ranked inside the top 20 nationally, tied with Johns Hopkins University. We are incredibly proud of the strides our students and faculty have made together in a short amount of time. These successes also continue in our Step 2 CK and CS scores below.

Table 14: USMLE Step 2 CK Scores

USMLE Step 2 CK	AY 2017-2018	AY 2018-2019
Number of test takers	7	72
Number Passed	7	69
Percent Passing	100	96
Mean score (national mean)	244 (243)	241 (243)

CNUCOM students are performing well compared to others nationally. In the first year that CNUCOM students took the Step 2 CK exam, the initial seven students passed and scored above the national average. Our subsequent group of students who took the exam during AY 2018-2019 scored just under the national mean. Still, we had a 96% passing rate for our first complete cohort.

Table 15: USMLE Step 2 CS Scores

| USMLE Step 2 CS	AY 2017-2018	AY 2018-2019
Number of test takers	10	54
Number Passed	10	45
Percent Passing	100	83
Mean score (national mean)	N/A	N/A

CNUCOM students are required to take and pass the Step 2 CS test in order to graduate. The first ten students all passed the exam. During AY 2018-2019, 45 out of 54 test takers passed the exam for a total passing rate of 83%. This result was lower than expected, thus we have made changes to our curriculum,

specifically to the *Medical Skills* courses in order to improve student preparation for these tests. In the past, we documented scores and formative feedback on a paper checklist document. We have now switched over to checking *Medical Skills* knowledge electronically. This allows us to quickly flag individuals who are not performing as well as their peers and provide necessary interventions. As our program grows, electronic tracking will also help us identify areas of strength and weakness due to the ability to quickly aggregate data across academic years and classes.

As a young medical school with only two graduated classes at the time of this report, our numbers of USMLE Step 3 test takers is low. However, the Step 3 scores we have received thus far are incredibly encouraging.

Figure 20: Step 3 Passing Rates

Step 3 Passing Rates as of 6/17/20
Average Score: 221

Passing
96%
25 Students

Failed
4%
1 Student
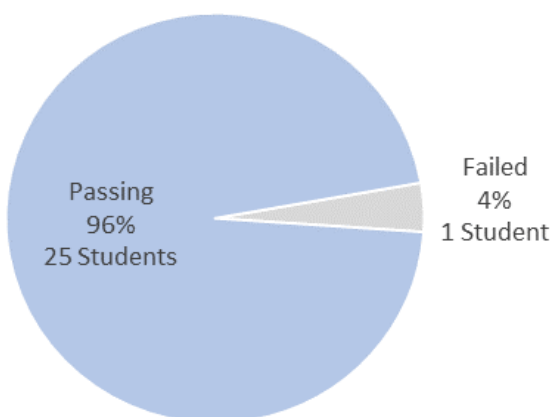
<u>Phase A and USMLE Correlations</u>
The following represents correlations that we feel will be related to success in USMLE scores. The tables below illustrate the correlations of average NBME scores after the first year (M1) and second year (M2). With our limited data, thus far we have not seen statistically significant data (*=<.05) that suggests that a student's NBME scores are related to USMLE Step scores. Still, for the classes of 2019 and 2020, our only two classes that have completed all or most of the required exams, we see that performance on USMLE Step 1 is significantly related to success of USMLE Step 2 CK. Also, for the class of 2019, success on the USMLE Step 2 CK exam was significantly related to their subsequent success on the USMLE Step 2 CS exam.

Table 16: Class of 2019-Class of 2023 Scores

Class of 2019					
	NBME Average-M1	**NBME Average-M2**	**USMLE Step 1 Score**	**USMLE Step 2 CK Score**	**USMLE Step 2 CS Score**
NBME Average M1	1				
NBME Average M2	0.9424*	1			

USMLE Step 1 Score	0.0202	0.0154	1		
USMLE Step 2 CK	-0.058	-0.0358	0.7793*	1	
USMLE Step 2 CS	-0.3234*	-0.3348*	0.0323	0.3208*	1

Class of 2020					
	NBME Average-M1	**NBME Average-M2**	**USMLE Step 1 Score**	**USMLE Step 2 CK Score**	**USMLE Step 2 CS Score**
NBME Average M1	1				
NBME Average M2	0.9071*	1			
USMLE Step 1 Score	0.0189	0.0119	1		
USMLE Step 2 CK	0.0596	0.0453	0.7604*	1	
USMLE Step 2 CS	0.0473	-0.0558	0.1224	0.176	1

Class of 2021					
	NBME Average-M1	**NBME Average-M2**	**USMLE Step 1 Score**	**USMLE Step 2 CK Score**	**USMLE Step 2 CS Score**
NBME Average M1	1				
NBME Average M2	0.9674*	1			
USMLE Step 1 Score	-0.0556	-0.0651	1		
USMLE Step 2 CK	.	.	.	.	
USMLE Step 2 CS	.	.	.	.	.

Class of 2022					
	NBME Average-M1	**NBME Average-M2**	**USMLE Step 1 Score**	**USMLE Step 2 CK Score**	**USMLE Step 2 CS Score**
NBME Average M1	1				
NBME Average M2	0.9683*	1			

USMLE Step 1 Score	.	.	.		
USMLE Step 2 CK	.	.	.	.	
USMLE Step 2 CS	.	.	.	.	.

Class of 2023					
	NBME Average-M1	**NBME Average-M2**	**USMLE Step 1 Score**	**USMLE Step 2 CK Score**	**USMLE Step 2 CS Score**
NBME Average M1	1				
NBME Average M2	1.0000*	1			
USMLE Step 1 Score	.	.	.		
USMLE Step 2 CK	.	.	.	.	
USMLE Step 2 CS	.	.	.	.	.

In the short time since our inception, CNUCOM has achieved milestones that rank as highly as historically outstanding medical schools. We believe this is due to a mutual understanding between students, faculty, and administration alike that we are all building toward a common goal, to produce exceptional physicians to aid the needs of this region. Our rigorous curriculum that typically sees students' grades between 70-80% in all courses is valuable preparation for the USMLE exams. As we continue to collect more data and fine-tune our assessments, we believe we will be able continue this trajectory and model predictive outcomes to aid students in need of intervention earlier.

Student Awards

Students at CNUCOM have demonstrated achievement in various areas, earning recognition at the state, regional, and national level. Examples of student awards from 2016-2019 are listed below.

Table 17: Student Awards 2016-2019 (M1=yellow, M2=green, M3=blue, M4=orange)

Year	**Financial Assistance Awards**	**Research Achievement Awards**	**Community Service and Leadership Awards**	**President's Scholarship**
2016	Xi Li (M1)	Jonathan Huang (M1)	Xi Li (M1)	Not Available
	Christopher Phillips (M1)	Brian Huang (M1)	Brian Huang (M1)	
	Brian Huang (M1)	Steven Nemcek (M1)	Jonathan Huang (M1)	

	Jonathan Huan (M1)	Vikas Shahi (M1)	Steven Nemcek (M1)	
	Spencer Salazar (M1)	Brendan Kim (M1)	Vikas Shahi (M1)	
	Vikas Shahi (M1)	Tanmayee Yenumula (M1)	Tanmayee Yenumula (M1)	
	Barkha Tiwana (M1)	Farrah Nasrollahi (M1)	Christina Cheung (M1)	
		Arion Lochner (M1)	Farrah Nasrollahi (M1)	
		Sammir Sullivan (M1)		
		Jessica Tran (M1)		
	Barkha Tiwana (M2)	Jessica Tran (M2)	Sammir Sullivan (M2)	Spring 2017
	Alana Freifeld (M1)	Babak Nouhi (M2)	Farrah Nasrollahi (M2)	Christopher Phillips (M2)
	Jonathan Huang (M2)	Sammir Sullivan (M2)	Brendan Kim (M2)	Brian Huang (M2)
	Elijah Abramson (M1)	Farrah Nasrollahi (M2)	Vikas Shahi (M2)	
2017	Vikas Shahi (M2)	Aradhana Verma (M1)	Brian Huang (M1)	
	Brian Huang (M2)	Vikas Shahi (M2)	Kayla Sheehan (M2)	Fall 2017
	Mohammad Wiese (M2)	Brendan Kim (M2)	Alana Freifeld (M1)	Alan Freifeld
	Kayla Sheehan (M1)	Brian Huang (M2)	Hera Wu (M2)	Min Cho (M3)
		Mohammad Wiese (M2)	Sammir Sullivan (M2)	Kayla Sheehan (M2)
		Kayla Sheehan (M1)		Kunyu Zhang (M3)
	Vikas Shahi (M3)	Vikas Shahi (M3)	Vikas Shahi (M3)	Fall 2018
	Brian Huang (M3)	Arion Lochner (M3)	Brian Huang (M3)	Babak Nouhi (M4)
	Alana Freifeld (M2)	Farrah Nasrollahi (M3)	Alana Friefeld (M2)	Cory Gregory (M4)
	Spencer Salazar (M3)	Alana Friefeld (M2)	Shelby Roberts (M2)	Nadija Rieser (M3)
2018	Makenna Marty (M1)	Sammir Sullivan (M3)	Kayla Sheehan (M2)	Kayla Sheehan (M3)
	Kayla Sheehan (M2)	Shelby Roberts (M2)	Hera Wu (M3)	Alana Freifeld (M3)
	Hera Wu (M3)	Nivaz Brar (M2)	Makenna Marty (M1)	
	Shelby Roberts (M2)	Babak Nouhi (M3)	Juliette Gerardo (M2)	Spring 2018
		Kayla Sheehan (M2)		Alana Freifeld (M2)

	Hera Wu (M3)		Manika Paul (M2)
			Makenna Marty (M1)
			Jonathan Lish (M3)
			Travis Denna (M2)

2019				
	Jordan Hastings (M2)	Kayla Sheehan (M3)	Radhika Gulhar (M2)	Spring 2019
	Brian Huang (M4)	Jonathan Lish (M4)	Juliette Gerardo (M3)	Steven Sprenger (M2)
	Makenna Marty (M2)	Alana Freifeld (M3)	Makenna Marty (M2)	Kayla Sheehan (M3)
	Megan Massoud (M3)	Neeraj Ramakrishnan (M3)	Kayla Sheehan (M3)	Manika Paul (M3)
	Steven Sprenger (M2)	Babak Nouhi (M4)	Purnima Gurung (M2)	Julie Eggleton (M3)
	Danielle Cohen (M3)	Makenna Marty (M2)	Neeraj Ramakrishnan (M3)	Alana Freifeld (M3)
	Christopher Phillips (M4)	Mark Hsu (M2)	Anne Liao (M2)	
	Alana Freifeld (M3)	Brian Huang (M4)	Alana Freifeld (M3)	
		Steven Sprenger (M2)		
		Radhika Gulhar (M2)		

In addition to existing awards for student achievement and tuition assistance, students in AY 2019-2020 experienced the introduction of new awards and funding (Table 18) that were established to encourage student scholarship. Comprised of both internal and external awards, these include awards from the Northern California Education Foundation (NCEF), Office of Medical Education (OME), the Lui Ping Memorial Scholarship in Neurology, military Health Professions Scholarship Program (HPSP), and for individuals who displayed outstanding excellence, the Merk Manual Award for Academic Excellence, Excellence in Academic Research, Excellence in Peer Education, and the Silva Award, in honor of CNUCOM's current and founding Dean.

Table 18: Student Awards AY 2019-2020 (M1=yellow, M2=green, M3=blue, M4=orange)

Awards	Students
Northern California Education Foundation (NCEF)	Adam Sauer (M1)
	Tiffani Barham (M2)
	Indraneel Brahme (M2)
	Charlotte Ellberg (M2)
	Karine Moussa (M3)
	Steven Sprenger (M3)
	Elijah Abramson (M4)
	Danielle Cohen (M4)

	Travis Denna (M4)	
	Alana Friefeld (M4)	
	Rohaum Hamidi (M4)	
	Neeraj Ramakrishnan (M4)	
Office of Medical Education (OME)	Seong Ahn (M2)	
	Peter Alexieff (M2)	
	Annaliese Elam (M2)	
	Purnima Gurung (M3)	
	Chelsea Hayman (M3)	
Lui Ping Memorial Scholarship in Neurology	Christopher Blaine (M2)	
	Mollee Chu (M2)	
	Kevin Ashley (M3)	
Health Professions Scholarship Program (HPSP)	Ara Alexanian (M1)	
	Ester Bartlett (M1)	
	Kirk Harter (M1)	
	Samantha Peralta (M1)	
	Olivia Willes (M1)	
	Anusri Yanumula (M1)	
President's Scholarship	**Fall 2019**	**Spring 2020**
	Charlotte Ellberg (M2)	Charlotte Ellberg- M2
	Makenna Marty- M3	Kevin Ashley (M3)
	Karine Moussa- M3	Katrina Pasao (M3)
	Alana Freifeld- M4	Travis Denna (M4)
	Timothy Yang- M4	Alana Freifeld (M4)
Tuition Assistance	Charlotte Ellberg (M2)	
	Steven Sprenger (M3)	
	Elijah Abramson (M4)	
	Alana Freifeld (M4)	
	Megan Massoud (M4)	
Community Service/Leadership	Charlotte Ellberg (M2)	
	Eric Jones (M2)	
	Radhika Gulhar (M3)	
	Alana Freifeld (M4)	
	Neeraj Ramkrishnan (M4)	
	Daniella Schochet (M4)	
	Aradhana Verm (M4)	
Research Achievement	Charlotte Ellberg (M2)	
	Radhika Gulhar (M3)	
	Mark Hsu (M3)	
	Steven Sprenger (M3)	
	Alana Freifeld (M4)	

	Neeraj Ramakrishnan (M4)
	Daniella Schochet (M4)
Merk Manual Award for Academic Excellence	Ethan Lotshaw (M4)
	Rohaum Hamidi (M4)
Excellence in Academic Research	Derek Asserson (M4)
Excellence in Peer Education	Nicholas Peterson (M4)
Silva Award	TBD (M4)

Student Scholarly Activities and Publications

First year medical students take a mandatory 1-year research course, the *Self-Directed Scholarly Project* (SDSSP), under the supervision of CNU faculty. All students have successfully concluded their SDSSP projects for the classes of 2019, 2020, 2021 and 2022. For the class of 2020, Research Day was held on April 27th, 2018. There were 49 presentations: 9 podium and 40 posters. Based on feedback from faculty and students, the April 2018 Research Day was productive and successful, with 3 student groups ultimately having their projects published as manuscripts in Pub-Med journals. For the class of 2021 Research Day was held on December 14, 2018. There were 13 podium presentations and 30 poster presentations. Lastly, more recently for the class of 2022 research day was held on December 13th 2019. There were 12 podium presentations and 52 posters. Major factors have contributed to the successful SDSSP has been consistent and 50% augmentation of faculty mini-grants awarded, hiring of a full-time lab manager to assist with student's basic science research, allocations of travel grants to students to present research at national meetings.

Student Satisfaction

As part of the self-study and accreditation process for LCME, the Independent Student Analysis (ISA) is organized and coordinated by students for their peers and serves to assess, commend, and critique medical education at CNUCOM. The latest 2017 ISA survey data indicates that students are generally satisfied with the state and progress of their medical education at CNUCOM. Students were pleased with faculty response to feedback and adjustments in their teaching and assessment styles in order to better meet student needs. Of note, as the program has matured, the satisfaction with the first year of teaching has steadily improved. In the class of 2019, 70% of students were either somewhat satisfied or very satisfied with the quality of the first year. That number increased to 94% for the class of 2020 and 99% for the class of 2021. Based on the free-response comments in the ISA, there was a general consensus that these improvements were attributed to alterations in the organization of the curriculum or modifications to teaching based on student feedback. There is satisfaction with the organization of the curriculum, the systems-based blocks, integration of clinical skills and reasoning, format of testing, and efforts to improve the program. The next ISA will be deployed in Fall 2020.

The inaugural class of 2019 has also provided CNUCOM with its first data set from the American Association of Medical College's Medical School Graduation Questionnaire (AAMCMSGQ). This national survey provides benchmark data used by medical schools to understand the needs and satisfaction of students that have graduated from medical programs in the United States. CNUCOM graduates' overall response rate (100%) exceeded the national average and students rated CNUCOM

favorably when asked about their satisfaction level with accessibility, awareness of student concerns, and responsiveness to student problems. In response to the prompt, "Overall, I am satisfied with the quality of my medical education," 91.9% of CNUCOM graduates agreed or strongly agreed compared to a national average of 89.2%. For the full set of responses, see Appendix P.

CNU's Institutional Research (IR) serves as an internal mechanism for assessing student, staff, and faculty satisfaction at CNUCOM. In the latest 2020 survey, 100% of student respondents agreed or strongly agreed that "the college provides opportunities for engaging in active learning," "they have the opportunity to be part of clubs and professional organizations on campus," and "the campus is safe." While CNUCOM scored above 60% on all other questions, the area that respondents felt needed the most improvement was Financial Aid. Fewer than 50% of respondents agreed or strongly agreed that "the guidance and processing from Financial Aid is sufficient."

Faculty

All CNUCOM faculty have either an MD and/or PhD in their respective specialty areas of instruction. A full list of faculty credentials can be found in Appendix Q. Specialties and/or disciplines represented include: all major biomedical disciplines of Anatomy, Physiology, Pharmacology, Biochemistry, Immunology, Microbiology, Molecular Biology, Oncology, Endocrinology, and Virology; and all core clinical specialties of Internal Medicine, Surgery, Pediatrics, Obstetrics/Gynecology, Emergency Medicine, Family Medicine, Psychiatry, Neurology, Pathology, and Radiology. Faculty certifications from major subspecialties of internal medicine include: Cardiology, Pulmonology, Infectious Diseases, Nephrology, and Endocrinology. CNUCOM faculty are either residency trained or have completed post-doctoral fellowships, and have earned their degrees from schools of medicine in the United Kingdom, Hong Kong, Brazil, and top-tier U.S. medical programs.

Table 19 identifies the current or future practice sites of CNUCOM faculty, who continue to serve as community physicians. Ten faculty members have practices in their respective specialties at health care systems within Northern California that include community general hospitals, academic centers, and Veterans Affairs sites. Furthermore, the majority of our community-based faculty have clinical practices locally where our students undergo clinical clerkships and approximately 130 electives/sub-internship experiences.

Table 19: Faculty Practice Sites

Faculty	Practice Site	Specialty
Dr. Scott Braley	Surgical Associates at Sutter Medical Center; Sacramento	General Surgery (Acute Care)
Dr. Darilyn Falck	Sutter Roseville Medical Center; Roseville (Turnure Medical Group Urgent Care, Wellpath)	Emergency Medicine
Dr. Mina Hah	Synapse Association; Davis	Psychiatry
Dr. James Lee	Sutter Roseville Medical Center; Roseville	Emergency Medicine
Dr. Reginald Low	University of California, Davis Health; Sacramento	Cardiology

| Dr. Shiv Sudhakar	Veterans Affairs Menlo Park; Menlo Park	Infectious Diseases
Dr. Tracy Yarbrough	Northern California PET Imaging Center; Sacramento	Nuclear Medicine
Dr. Rajendra Ramsamooj	Mercy San Juan Medical Center; Carmichael	Pathology
Dr. Arpita Vyas	Sutter Medical Center; Sacramento & San Joaquin Counties	Pediatric Endocrinology
Dr. Beatrice Tetteh	Tetteh Pediatric Health, Inc.; Sacramento	Pediatrics
Dr. Jean-Claude Veille	Valley Children's Health System; Madera	Maternal-Fetal Medicine (High-Risk Obstetrics/Gynecology)
Dr. Leonard Ranasinghe	Shasta County Jail; Redding	
Dr. Joseph Rogers	John C. Fremont Hospital; Mariposa	Family Medicine
Dr. Nazila Hejazi	West Coast Pathology Laboratories (previously Promolecular Diagnostics, LLC); Hercules	Pathology

Faculty Teaching Effectiveness: Student Evaluations of Faculty and Courses

Towards the completion of courses, all core pre-clerkship (M1 and M2) courses and instructors, clerkship (M3) sites and preceptors, and elective (M4) sites and preceptors are evaluated by the students using an anonymized electronic questionnaire administered through MedHub (see Appendix R for Phase A, B, and C student evaluations). The process is carried out by course directors and CNUCOM administrators. A link to the questionnaire is shared with the students in the classroom by the department's administrator. Once all course grades are reported to the Office of the Registrar, the respective department chair shares the course and instructors' evaluations with each course director/faculty member.

Phase A Evaluations

Particularly for Phase A, course evaluations are reviewed at regular intervals by the Assessment and Evaluation Committee using these summative assessments. Post-course discussion of these assessments is also held in the Phase A Subcommittee of the Curriculum Committee where student representatives are invited to contribute to the discussion. Evaluations of faculty are reviewed by the Assessment and Evaluation Committee and results are summarized and forwarded to the appropriate Chair. The Chair reviews evaluations along with other metrics during yearly reviews with faculty members. If areas of improvement are needed, the Chair counsels the faculty and sets clear expectations and metrics for improvement. Depending on the severity of the deficit, more regular evaluations will be done and meetings with the Chair will happen more than once per year. On rare occasions, poorly performing faculty have been dismissed.

Figure 21: Average Student Evaluation Scores (M1)
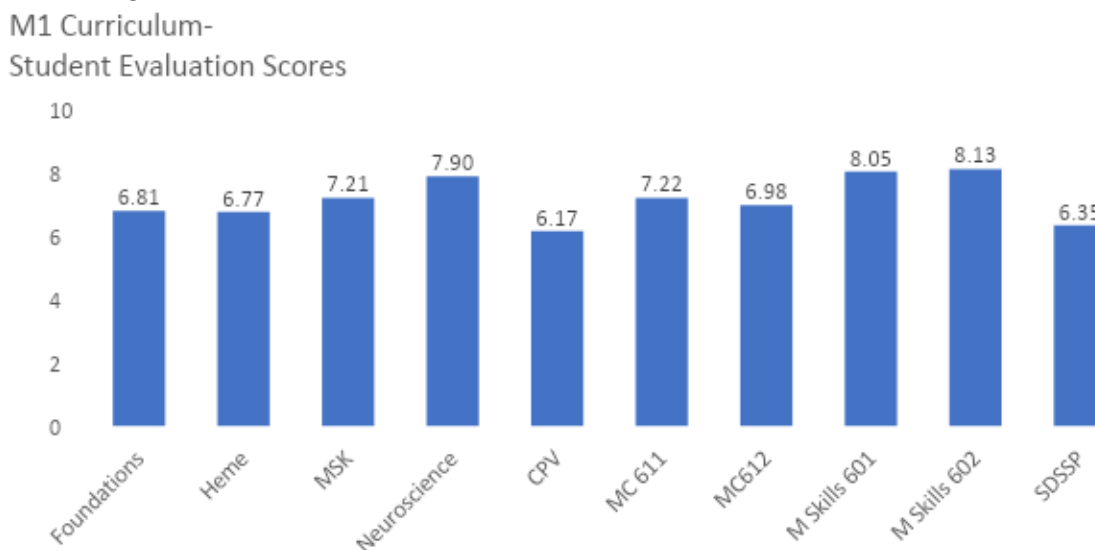
Student evaluations have undergone a recent change. Until recently all student evaluations were sent out via MedHub. Since Fall 2019, all Phase A course evaluations are conducted through SurveyMonkey. This change occurred because many students were frustrated with accessibility and could not complete their evaluations across mobile devices. The transition to SurveyMonkey has alleviated this problem and our overall response rates have increased. While our survey platform has changed, how we measure the courses has not. Rating overall satisfaction with the course on a 10-point scale, the average student score for all M1 courses is 7.25. The highest scores came from *Medical Skills* courses, where students interact with standardized patients to begin building their patient-centered skills.

Figure 22: M2 Student Evaluation Scores
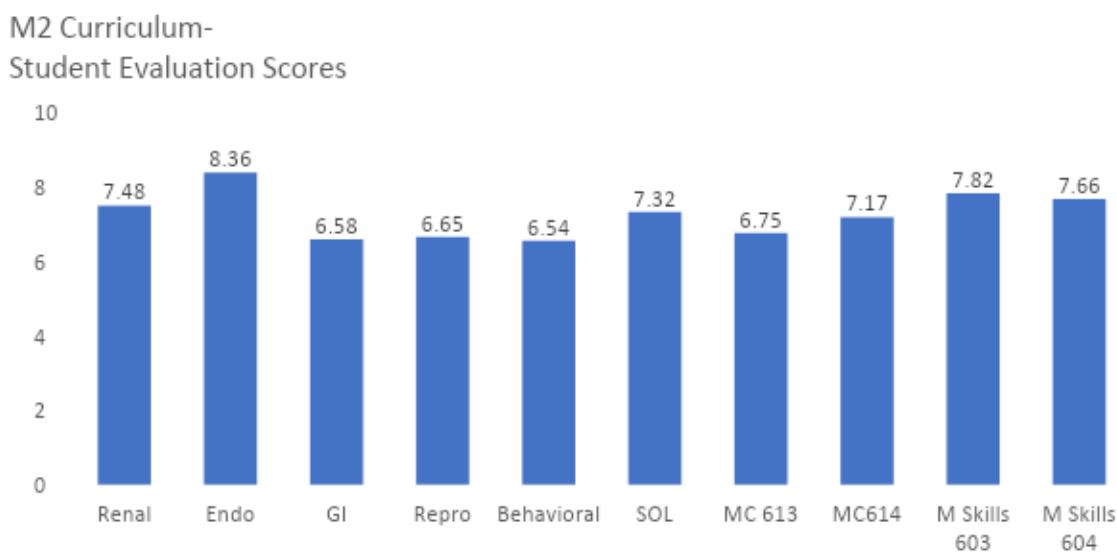
The average scores for M2 students are similar to M1 students. Overall, the average score for M2 courses is 7.23. The highest student evaluation score during M2, on average, is the *Endocrine* course. These are based on a 10-point scale and all individual scores across years are available in Appendix S.

Phase B and C Evaluations

During the clinical phase of our curriculum, students and faculty (preceptors) are asked to evaluate each other. These evaluations are completed on MedHub due to the familiarity of medical personnel with the program. For the purposes of this report, the figures below illustrate students' evaluations of sites and their preceptors for two completed years of Phase B and one completed year of Phase C.

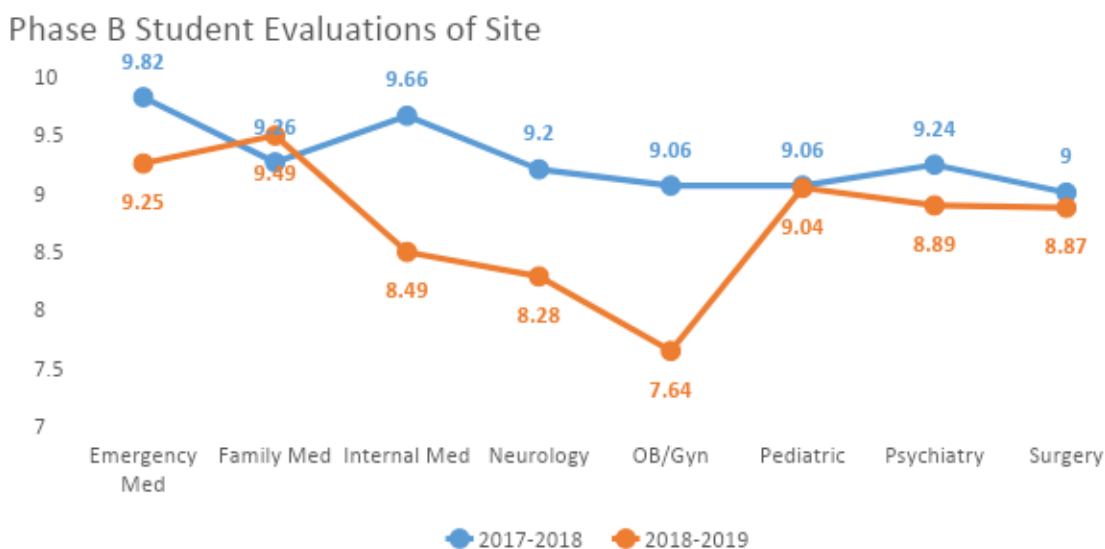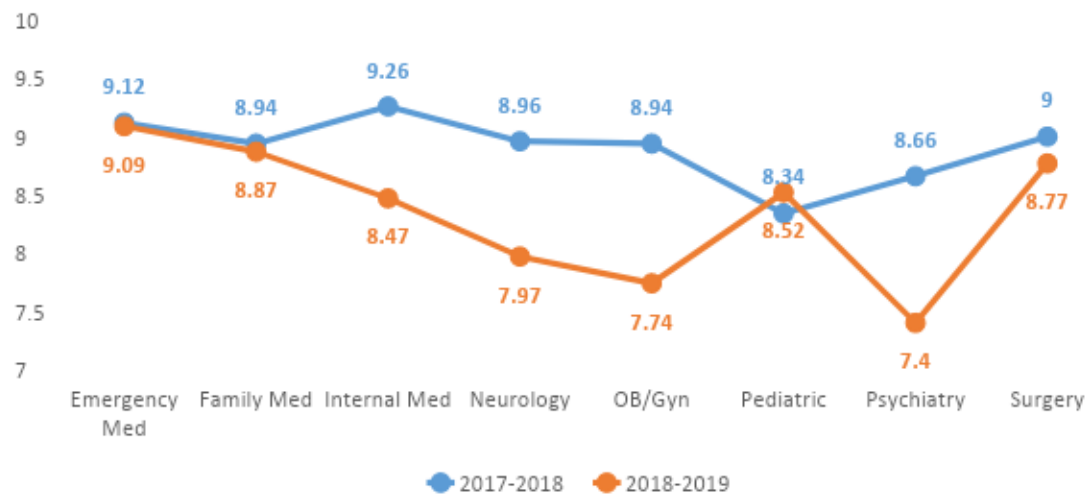*Figure 23: Phase B Student Evaluations of Sites*

Figure 24: Phase B Student Evaluations of Preceptors

Phase B Student Evaluations of Preceptor

Overall, there are a few differences between Academic Years 2017-2018 and 2018-2019. The larger differences occur in students' evaluations of their preceptors, particularly in Obstetrics/Gynecology and Psychiatry. Clerkship directors have been notified of these differences and we are monitoring upcoming evaluations.

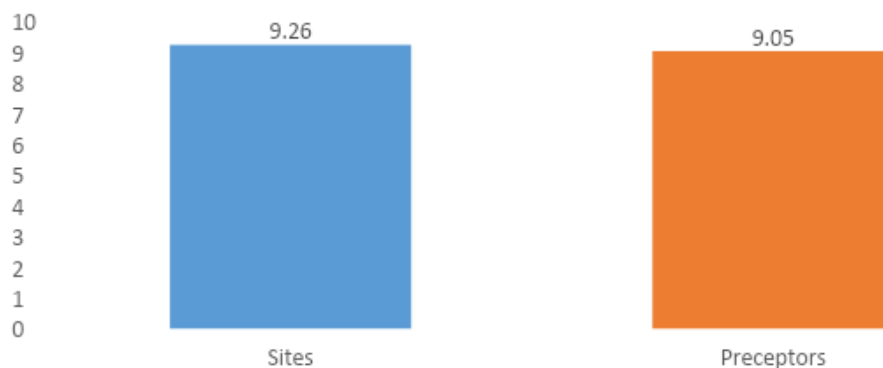*Figure 25: Phase C Evaluations of Sites and Preceptors*

Figure 25 illustrates Phase C student evaluations of sites and preceptors from our first graduating class in AY 2018-2019. Using a 10-point scale, evaluation results indicates positive experiences overall across clerkship sites and with clerkship preceptors.

CNUCOM's Office of Research is charged with cultivating an academic environment that is collaborative, productive, and creative that will foster innovative, cutting edge research ideas leading to groundbreaking discoveries. The Office of Research has been instrumental in supporting the successful growth of research endeavors within CNUCOM. In doing so, we are committed to building an extensive research infrastructure by increasing seed grants for faculty-initiated research initiatives, fully equipping basic science research laboratories, and establishing the Center for Translational Medicine. Furthermore, we support research endeavors of our medical students by providing travel grants, symposium poster costs, and academic faculty support to successfully train students in scholarly activities.

Additionally, CNUCOM provides support for faculty research in various ways. CNUCOM has established a mini-grant program to foster faculty research. The research mission of CNUCOM is to promote research spanning basic research, translational and clinical research, population sciences and education research. In 2017, funding totaling $40,000 was provided. This was increased by 50% with the recruitment of more faculty who are research-oriented to $60,000. In the 2019 cycle, funding in the amount of $60,000 was provided for an 18-month period. The availability of intramural grant funds dedicated to research comes with the expectation that faculty will mentor medical students in their research projects and be able to obtain sufficient preliminary data to submit extramural grants to NIH and other funding organizations. Additional funding is available to course directors to offset expenses associated with student research in the *Self-Directed Student Scholarly Program* (SDSSP) course for poster preparation and travel to national meetings. Also, the Dean provides protected time for faculty who have a major focus on research to enable them to generate preliminary data and submit extramural grants. Further support for grants, collaborations, and capital equipment as requested by faculty is processed through the CNUCOM Office of Research. In addition to the budgeted allotment for new research, there is also a budget line item for continued research.

Additional steps taken for research support:
- Establishment of Institutional Regulatory Boards (IRB) and IACUC to ensure all faculty follow responsible conduct in research, as well as to provide external animal facilities through signed agreements.
- Hiring a full-time research Laboratory Manager to assist students and faculty with basic research studies.
- Within the Center for Translational Medicine, we are establishing essential connections between our faculty and hospital systems including the Veterans Affairs of Sacramento, Sutter Medical Center, and Kaiser-Modesto to facilitate research in translational medicine.

Furthermore, research support, as mentioned above, has led to CNUCOM faculty acquiring the intramural and extramural funding grants listed in Tables 19 and 20 below.

Table 20: CNUCOM Intramural Grants (Mini-Grant Program)

Project Title	Principal Investigator	Project Period
LabHEART Quattro: A Computer Model to Study Cardiac Electrophysiology	Dr. Jose Puglisi	2017

Project Title	Principal Investigator	Year
Modulation of Hepatoma Gene Expression Patterns by Substrate and Culture Conditions: A Model for Hepatocyte Response to Environmental Conditions	Dr. Michael Bradbury	2017
Assessing Risks of Impaired Healing and Osteomyelitis Associated with Bisphosphonates	Dr. Xiaodong Feng	2017
The Role of Serotonin in T Cell Differentiation and Function	Dr. Valerie Gerriets	2017
Concussion Awareness, Prevention and Treatment	Dr. Ravinder Khaira	2017
Positive Allosteric Modulators of α7 Nicotinic Receptors for Cognitive Impairments	Dr. Hugo Arias	2017
Immune Cell Infiltration and Autophagy Status of Adipose Tissue in Nascent Metabolic Syndrome	Dr. Ishwarlal Jialal	2018
Assessment of Student Wellness during Medical School	Dr. Valerie Gerriets	2018
Medical Applications for 3D Printing	Dr. Jose Puglisi	2018
Concussion Education for High School Athletes	Dr. Ravinder Khaira	2018
Determination of Whether RhoB Expression Level Can Predict the Outcome of Prostate Cancer	Dr. Nazila Hejazi	2018
A Validation Study for mHealth Technology Applied to Parkinson's Disease Patients	Dr. Katherine Whitcome	2018
Fatty Acid Uptake in Obesity and Hepatic Steatosis	Dr. Michael Bradbury	2018
Inflammation, Metabolomics and Cardio-Metabolic Disorders	Dr. Ishwarlal Jialal	2019
High-throughput Screens for Anti-HBV Activities of African Medicinal-Plant Library	Dr. Ahmed El-Shamy	2019
Use of Wearable Technology and Telemedicine to Monitor Heart Rate Variability and Physical Activity in Children with Autism Spectrum Disorders	Dr. Jose Puglisi	2019
Effect of Focused Personal Learning Portfolios on Medical Student Learning Approach and Outcomes	Dr. Tracy Yarbrough	2019

Table 21: CNUCOM Faculty Extramural Funding

Project Title	Principal Investigator	Funding Agency	Project Period	Total Funds
Clinical Trials of Poison Ivy Vaccine	Co-PI Dr. Catherine Yang	Allergy and Asthma of South Jersey, P.A.	06/01/2016-06/30/2021	$200,000
Preclinical Study of a Dual Functional Drug for Type 2 Diabetes Drug Complex with	Dr. Catherine Yang	DNJ Pharma, Inc.	06/01/2016-06/30/2021	$200,000

|				
Hypertension				
New Generation of Peanut Allergy Vaccine	Dr. Catherine Yang	New Jersey Health Foundation	07/01/2017-6/30/2020	$100,000
Identification of Synthetic Lethal Partners of Cancer Germline Mutations using Pan-Cancer Human Primary Tumor Data	Dr. Yihui Shi	NIH NCI R21	09/11/2019–08/31/2021	$584,037.00 (direct cost)
The Role of Probiotics in Lowering Blood Sugar Levels in Women with Gestational Diabetes	Dr. Jean-Claude Veille	Ubiome Inc.	TBD	$38,000
HERV-K Blockade to Prevent RAS Activation in Breast Cancer	Dr. Yihui Shi	NIH NCI R21	05/01/2020-4/30/2021	$105,000
Gestational Hyperandrogenism in Cardiovascular Programming (Scored at the 4th percentile)	Dr. Arpita K. Vyas	NIH R01 HL139639 NHLBI	04/01/2020-03/31/2025	$2,629,075.10

ITLE Grant-Writing Workshop

CNU's Institute for Teaching and Learning Excellence (ITLE) sponsors grant-writing workshops for all CNU faculty and students. Each two-hour session includes both didactic instruction and small group learning and discussions with panel experts (consisting of faculty with extensive expertise in both federal and private funding mechanisms). Four sessions have been planned for 2020:
- **Session 1: *New Investigator Awards and Training Grants*** (February 25, 2020)
  Topics: grant components, building relationships, writing a strong mentorship plan
  Panel members: Drs. Justin Lenhard (CNU, College of Pharmacy), Ruth Vinall (CNU, College of Pharmacy), Arpita K. Vyas (CNU, College of Medicine)

- **Session 2: *Federal and State Grants*** (March 9, 2020)
  Topics: finding appropriate funding mechanisms, writing a strong specific aims page
  Panel Members: Drs. Ghalib Alkhatib (CNU, College of Medicine), Yihui Shi (CNU, College of Medicine), Jason Lillis (CNU, College of Psychology), and Paul Glassman (CNU, College of Dentistry)

- **Session 3: *Student Grant Applications*** (TBA)
  Panel Members: Drs. Ashim Malhotra (CNU, College of Pharmacy) and Linda Buckley (CNU, College of Pharmacy)

- **Session 4: *Grant-Writing Tips and Tricks*** (TBA)
  Topics: writing a strong research strategy section (including statistical analysis section)
  Panel Members: Drs. Sonal Desai (Senior Grant Writer, UC Davis) and Craig Wetterer (CNU, College of Psychology)

Faculty Scholarly Activities and Publications

CNUCOM faculty has extensive involvement in the SDSSP course, designed to train medical students in research and scholarly activities. Furthermore, active participation in the SDSSP course enhances faculty's research productivity and at the same time allows for cultivating an excellent scholarly environment at CNUCOM. Other major factors that have contributed to the success of the faculty's scholarly activities include: 50% augmentation of faculty mini-grants awarded, the hiring of a full-time lab manager to assist with basic science research, and allocations of travel grants to students and faculty to present research at national meeting. Such endeavors have led to a consistent increase in publications by our faculty (Figure 26).

Figure 26: Faculty and Student Publications 2014-2019
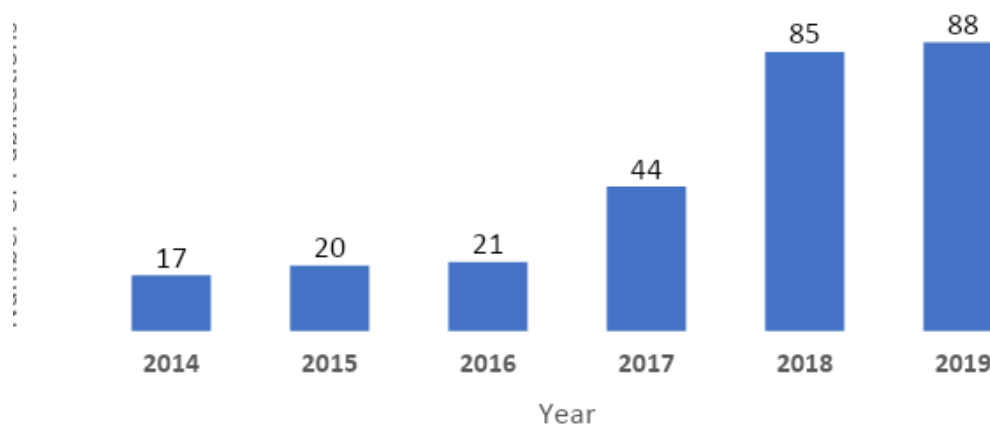
Our future goals are to continue to support faculty scholarly activities. As highlighted in our Strategic Plan, we have committed to increasing funding for intramural grants, enhancing resource availability, and strategically hiring faculty with strong research backgrounds and experience in securing extramural funding to fit with the research mission of CNUCOM.

Faculty Professional Development Opportunities on Teaching

Because of CNUCOM's integrated curriculum, where the students are exposed early to problem-based learning, pedagogical training in this technique of learning is critical. Ongoing professional development opportunities specifically around teaching are multi-faceted and include:
1. Regular on-campus professional development lectures on topics including leadership; pedagogy; curriculum development and mapping; evaluation and assessment, LCME secretariat sessions; and clinical, basic science, and translational research.
2. Intensive training in the technique of problem-based learning (Clinical Case-Based Learning (CCBL)) for newly-hired and experienced faculty, as related to the goals, objectives and local practice/methodology of problem-based learning. This includes shadowing an experienced faculty member to observe a live CCBL session *in situ*.

3. Faculty professional development workshops based on faculty-identified areas for opportunity/enhancement, as facilitated by the CNUCOM Center for Teaching and Learning (CTL).
4. Faculty learning communities and other focused pedagogical training series, as provided by the CNU Institute of Teaching and Learning Excellence (ITLE).

In the past, seminars devoted to education have also included topics such as writing exam questions, pedagogy, engagement of student learning, and others. Attendance sign-in is required and reviewed by the Chair at annual faculty reviews. We do not have a metric for mastery of these topics at this time, but faculty are expected to attend monthly meetings, trainings, and workshops to enrich their pedagogy and practice.

In addition to on-campus professional development, CNUCOM provides discretionary funds for faculty attendance at local and national conferences on pedagogy (past development seminars have included the Association of American Medical Colleges (AAMC), Harvard Macy-Leading Innovation in Health Care and Education, and Woman Leadership in Higher Education offerings), assessment (including question-writing, WASC Annual Conferences and workshops), ITLE Grant-Writing Workshops and specialty/discipline-specific content as related to their teaching responsibilities.

Faculty Awards and Recognitions

CNU has a variety of internal awards and recognitions for faculty and staff that are offered annually to recognize service or contributions to the University and/or CNUCOM. The process for nominating faculty and staff for the awards and selecting recipients has changed over the time period covered by the review. For the most recent round of CNUCOM awards (see Table 22 below), faculty and staff are either self-nominated or nominated by a peer. Recipients were evaluated using a rubric based on specific criteria set forth by the Scholarship and Awards Committee. In AY 2019-2020, the Center for Teaching and Learning worked closely with student leaders to develop student-nominated Teaching Awards for the first time, to be awarded annually henceforth.

Table 22: CNUCOM Intramural Grants and Awards 2018-2020

Recipient(s)	Award and Year
Dr. Mark Sheffield	Institute for Teaching and Learning Excellence Award (2019), ITLE; VP of Academic Affairs' Innovation in Education Award (2019), Office of Academic Affairs
Dr. Sailabala Vanguri, Dr. Nripendra Dhillon, Dr. Tracy Yarbrough, Dr. Carol Conrad-Forrest, Dr. Rochelle Frank, Dr. Jose Puglisi, Dr. Floyd Culler	Certification of Completion of 6-Week Summer Program (2019), ITLE Faculty Learning Community
Drs. Mark Sheffield & Floyd Culler	ITLE Healthcare Education Grant Award (2020), ITLE

Drs. John Cusick & Valerie Gerriets	ITLE Healthcare Education Grant Award (2020), ITLE
Dr. Nripendra Dhillon	M1 Professor of the Year (2020), Center for Teaching and Learning (CTL) & Student Government Teaching Awards
Drs. Mark Sheffield & Muralikrishna Golconda	M1 Small Group Facilitators of the Year (2020); CTL & Student Government Teaching Awards
Dr. ForShing Lui	M1 Best Single Learning Event of the Year (2020), CTL & Student Government Teaching Awards
Drs. Nripendra Dhillon & David Arenson	M2 Professors of the Year (2020), CTL & Student Government Teaching Awards
Dr. Mark Sheffield	M2 Small Group Facilitator of the Year (2020), CTL & Student Government Teaching Awards
Dr. Mark Sheffield	M2 Best Single Learning Event of the Year (2020), CTL & Student Government Teaching Awards
Dr. Edgar Catingub	M3/M4 Preceptor of the Year (2020), CTL & Student Government Teaching Awards
Dr. ForShing Lui	Physicianship Award (2020), CTL & Student Government Teaching Awards

CNUCOM faculty have also been recipients of a number of external awards and recognitions in the time period covered by the review as indicated in Table 23 below.

Table 23: External Awards and Recognitions of CNUCOM Faculty

Faculty	Award
Dr. David Arenson	● Sutter Medical Network Patient's Choice Award (Sutter Health); 2018
Dr. John Bissell	● Cecil Cutting Award for Transforming American Health Care (Permanente Medical Group); 2010
Dr. John Cusick	● Founders' Award (California University of Science and Medicine); 2018 ● Certificate of Excellence in Teaching Award (California University of Science and Medicine); 2019
Dr. Darilyn Falck	● Sacramento's Top Doctors in Emergency Medicine (Sacramento Magazine); 2018
Dr. Rochelle Frank	● Elected Vice Chair (American Academy of Neurology NIN)
Dr. Mina Hah	● Treasurer (Central California Psychiatric Society, American Psychiatric Association); 2020
Dr. Ishwarlal Jialal	● Honorary Professor, School of Laboratory Medicine and Medical Sciences (University of KwaZulu-Natal; Durban, South Africa); 2016-2019 ● Editorial Board (World Journal of Diabetes); 2019
Dr. Vijay Khatri	● Associate Editor (Surgery, Gastroenterology and Oncology Journal) ● Visiting Professor (Seoul National University; Bundang, South Korea) ● Visiting Professor (International Symposium of Serbian Surgeons; Novi Sad, Serbia) ● Honorary Professor (Imperial College of London) ● Invited Guest Editor (Surgical Oncology Clinics of North America - Precision Medicine in Oncology) ● Invited Faculty (Annual IASGO Congress; Bangkok, Thailand)

Dr. Jose Puglisi	● CNUCOM Mini-Grant International Collaboration (University of Mogi das Cruces; Sao Paulo, Brazil); 2018
Dr. Rajendra Ramsamooj	● Editorial Board (Journal of Biomarkers and Applications) ● Editorial Board (International Journal of Experimental and Clinical Research) ● Editorial Board (British Journal of Research)
Dr. Jean-Claude Veille	● Best Life-Long Doctor; 2019
Dr. Arpita Vyas	● Appointed chair of Newborn Screening committee for the National Pediatric Endocrine Society 2019-onwards ● Editorial Board (Scientific Reports-Nature)
Dr. Gordon Wong	● Golden Stethoscope Award (Sierra Sacramento Valley Medical Society); 2017
Dr. Jason Wong	● Dean's Apple Award for Teaching (University of California, San Francisco, College of Pharmacy); 2018
Dr. Catherine Yang	● Albert Nelson Marquis Lifetime Achievement Award as a Leader in the Field of Education; 2020
Dr. Tracy Yarbrough	● Fellow (American College of Nuclear Medicine) ● Hyman-Ghesani Society (Nuclear Medicine International Rad-AID Fellowship) ● ScholarRx Grant: "*Relationship between use of self-selected resources, predominant learning approach and performance in pre-clerkship undergraduate medical education*" (ScholarRx); 2019-2021

2b. Evidence of Program Viability and Sustainability

Demand for the Program

Table 24 demonstrates the growing demand for CNUCOM's medical degree. While the number of applications from 2015-2019 has increased by 522%, CNUCOM admissions has only increased by seven slots. This makes CNUCOM a highly selective program with a 2% admittance rate.

Table 24: Number of Student Applications and Enrollments: 2015-2019

Applicant Data	Year of Admission				
	2015	2016	2017	2018	2019
Number of Applications Received	685	2885	5656	4828	4265
Number of Applicants Interviewed	331	357	358	318	282
Number of Offers	77	357	214	202	194
Percentage of Interviews to Applicants	48%	6%	6%	4%	7%
Percentage of Offers to	23%	18%	60%	64%	69%

Interviewed				
Percentage of Offers to Matriculants	78%	25%	44%	48%	49%
Number Admitted	89	90	94	94	96

Allocation of Resources

Faculty

Currently, CNUCOM employs 55 faculty: 11 faculty work full-time and 44 work part-time with FTEs ranging from 0.2-0.9. The following table represents the rank and representation of current faculty in their respective fields. With the addition of clerkship preceptors and community faculty, CNUCOM employs 800-1000 individuals who collectively educate approximately 374 students (M1 through M4) in the course of an academic year.

Table 25: Summary of Current Faculty Rank (as of December 2019)

Rank	Basic Science	Clinical Science	Clinical Medicine	Total Headcount
Professor	4	7	5	16
Associate Professor	4	10	7	21
Assistant Professor	9	4	7	20
Instructor/Adjunct	0	0	0	0

Presently, 36 faculty members have their own office, while part-time adjuncts/instructors share office space. Each office is private, which allows for faculty to meet and advise their students. In addition, there are several Flex offices that are available for use by faculty to meet with students. Faculty have office hours on campus, which are stated in the course syllabi, and are also available by email, telephone, and through Canvas (the campus' online learning management system). Staff have individual cubicles that are arranged for opportunities to cross-cover. Each office is equipped with a computer linked to the internet and to workroom printers for secured printing.

Faculty Retention

CNUCOM recognizes that some turnover is inevitable and occasional turnover is desirable and beneficial to the healthy functioning, and infusion of new thought and creativity to the University. Some faculty have departed to accept promotions and higher-ranking academic positions at other medical schools. It is also recognized that turnover occurs when a change in direction or leadership happens, such as when a new Dean is hired. So, while some degree of faculty attrition is unavoidable, CNUCOM experienced higher than usual turnover over in 2016 and 2017 with the appointment of a new Dean as indicated in Table 26 below.

Table 26: Summary of Faculty Hire and Separation Data

Year	# Hired	# Separated	Attrition Rate (%)
2014	5	0	0

2015	25	1	3
2016	16	6	12.5
2017	5	7	14.9
2018	22	5	7.9
2019	7	3	4.5

The University, including CNUCOM, implemented an updated Recruitment and Retention Plan, which includes a training program for department chairs, the creation of policies to ensure regular analysis of compensation packages, the implementation of a higher pay scale, a more competitive benefits package with options for long-term care, a new 401K plan, family tuition incentives, the implementation of a long-term mentoring program, increased use of multi-year contracts and timeliness of contract renewals, performance metrics for all levels of university management that include retention as a goal, and an increase in the number of faculty development opportunities.

Actions aimed at improving retention have thus far resulted in meaningful improvements, with a dramatic decline in the attrition rate in the past two years. The institution prides itself on the high caliber of its faculty. It seeks to attract and retain excellent faculty who are focused on cultivating best practices in teaching and learning. Faculty search committees work with Human Resources to incorporate the best practices to recruit a mixture of senior faculty with leadership proficiency and mentoring experience to enhance the supportive environment for new junior faculty to succeed in their academic missions.

Faculty Workload
In 2019, the Office of Faculty Affairs collaborated with the Office of Assessment and Evaluation and the Department Chairs to develop a model for calculating faculty workload. An extensive literature review was performed to investigate the various methodologies that are used within higher education. In doing so, CNUCOM has reinforced the academic missions of teaching, scholarship, and service and outlined the activities that satisfy these missions in subsequent faculty appointment letters as well as CNUCOM's Rank and Promotion Manual. Faculty progress in these areas is reviewed regularly by Department Chairs and during general faculty meetings.

Results from the workload analysis demonstrated that the overall faculty allocation of effort was 56%, 32%, 12%, teaching, service, and scholarship respectively. Teaching load includes direct teaching hours and associated course management activities.

Table 27: Faculty Workload Analysis (AY 2019-2020)

Faculty Activity	Percentage
Direct Teaching + Course Management	56%
Service	32%
Research Activity	12%

Results from this workload analysis demonstrated that the faculty allocation of effort for the Basic Science Department was 15%, 20%, 23%, and 15% for teaching, course management, service and scholarship, respectively. Faculty allocation of effort for the Clinical Science Department was 23%, 20%, 19%, 14%, and 5% for teaching, course management, service, and scholarship, respectively.

Faculty allocation of effort for the Clinical Medicine Department was 19%, 28%, 31%, and 5% for teaching, course management, service and scholarship, respectively. The teaching load included direct face-to-face teaching and necessary adjustments were made to account for preparation time required for each lecture, small group discussions, and the anatomy dissection laboratory. For this calculation, course management was defined as activity directly related to the operational aspect for delivery of student education. The service component includes administrative work performed as a member of faculty standing committees and other intramural and extramural activity necessary for personal professional growth. Scholarship efforts are supported through intramural mini-grant program and protected time.

Overall, this workload analysis demonstrated an alignment with the missions of the institution, but there is variation amongst the faculty depending on the appointed department. Annually, faculty reassess their efforts within each mission by completing the Individual Development Plan which is reviewed with their Department Chair to make necessary adjustments. Particular attention is paid to service burdens among faculty to allow for pursuits of scholarly activities or personal development in pedagogy. CNUCOM is also aggressively recruiting new faculty to reduce the teaching load among current faculty. CNUCOM recognizes that a comprehensive workload analysis can be conducted on a regular basis to balance both institutional needs and faculty success.

Faculty Performance Review
Faculty members receive regularly scheduled feedback on academic performance and progress toward promotion and, when applicable, multiple-year re-appointment. All faculty members receive an annual performance evaluation prepared by their Department Chair. Faculty submit documentation of their activity in teaching, research, scholarly activity, clinical practice, and service to the Department Chair, who then meets with the faculty member to review his or her performance and completion of annual goals (see Appendix T for the CNUCOM Faculty Handbook). Prior to the annual evaluation meeting, new faculty members are asked to prepare and existing faculty are asked to update their Faculty Professional Development Plan and complete a written self-evaluation.

The faculty member is also evaluated through review of their student evaluations. Faculty members are evaluated by students at least once during an academic year in one of the courses that they teach. Student feedback is collected by the Department Chairs who use the information to evaluate the faculty member's teaching performance. If applicable, Department Chairs discuss student concerns with the faculty member and a copy of the report is added to the faculty member's file.

In addition, each faculty member's teaching performance is evaluated by three of his or her peers at least once a year. The Chair of the Assessment and Evaluation Committee arranges for and monitors the process. The faculty peer evaluation reports are sent to the Associate Dean of Faculty Affairs and Development, who then shares the feedback with the faculty member and discusses any identified training needs. If necessary, arrangements for training needs are made.

After accumulation of the faculty assessment data, the faculty member and the appropriate Department Chair identify goals for the following year, academic assignments, and any other obligations such as patient care. Following this discussion, the Department Chair submits a written evaluation to the faculty member containing a summary of the review of the faculty member's activities, goals, and objectives for the next academic year, teaching assignments, assignments to other activities, and any identified training

needs or corrections that may be necessary. As part of this process, the Department Chair and the faculty member review progress toward promotion and retention. All meetings are documented with a written narrative from the Department Chair, with an opportunity for the faculty member to respond. The Dean receives copies of all faculty annual evaluations.

Additionally, the faculty member's progress toward promotion is reviewed after serving three years in a specific rank. This provides the opportunity to improve deficiencies in performance in order to progress on schedule. Such progress will be reviewed at the five-year mark to determine if the faculty member is likely to be successful when applying for promotion. The Department Chair suggests options and resources available to help the faculty member progress. CNU is a non-tenure granting institution and it is the responsibility of the faculty member to utilize this information to make progress toward promotion.

Faculty Mentoring
The Mentoring Program at CNUCOM is primarily designed to help junior faculty members achieve the following:
   a) Adjust to the environment;
   b) Meet high standards of rigor, depth and innovation in scholarship, and realize their full potential as scholars, teachers, and members of the academic community;
   c) Plan their careers and attain their academic goals.

When junior faculty join CNUCOM, they are assigned a senior faculty member to serve as a mentor. The faculty research mentors to assist faculty in their skills in research methodology, publication development, and/or grant procurement include the following individuals:

Table 28: Faculty Mentors

Name	Title(s)
Joseph Silva, MD	Dean, CNUCOM; Vice President of Medical Affairs, CNU; Professor of Internal Medicine and Infectious Diseases, CNUCOM
Gordon Wong, MD	Senior Associate Dean of Clinical Medicine, CNUCOM; Professor of Pulmonology and Infectious Diseases, CNUCOM
Ghalib Alkhatib, PhD	Chair, Department of Basic Science, CNUCOM; Professor of Microbiology, CNUCOM
Vijay P. Khatri, MBChB, MBA, FACS	Assistant Dean of Faculty Affairs and Development, CNUCOM; Professor of Surgery and Oncology, CNUCOM; Editor-in-Chief, Surgical Oncology
Catherine F. Yang, PhD	Vice President of Academic Affairs, CNU; Associate Dean of Medical Education, CNUCOM; Professor of Biomedical and Translational Sciences, CNUCOM
Ruth Vinall, PhD	Assistant Dean of Research, College of Pharmacy
Jose Puglisi, PhD	Assistant Professor of Physiology and Biostatistics, CNUCOM
Yihui Shi, MD, PhD	Professor of Cancer Biology, CNUCOM
Justin Lenhard, PharmD	Assistant Professor of Clinical and Administrative Sciences, College of

	Pharmacy
Karen McClendon, PhD	Vice President of Institutional Research, Quality, and Assessment, CNU
Juan Urbano Jr., PhD	Director of Assessment and Evaluation, CNUCOM
Xiaodong Feng, PhD, PharmD	Dean, College of Pharmacy; Associate Dean of Student Affairs, Admissions, and Outreach, CNUCOM
Welly Mente, PharmD, FCSHP	Vice Chair, Clinical and Administrative Sciences, College of Pharmacy; Assistant Professor of Clinical Sciences, College of Pharmacy
Reginald Low, MD, FACC, FACP	Vice Dean, CNUCOM; Professor of Cardiology and Internal Medicine, CNUCOM
Floyd Culler, MD	Chair of Faculty Council, CNUCOM; Professor of Pediatrics, Endocrinology, and Clinical Skills, CNUCOM
Raj Ramsamooj, MD	Assistant Dean of Curriculum, CNUCOM; Professor of Pathology, Surgical Pathology, and Clinical Skills, CNUCOM
Ashim Malhotra, PharmBS, MS, PhD, FAPE	Assistant Dean of Curriculum and Program Development, College of Pharmacy; Director of Institute of Teaching and Learning Excellence, CNU
Tuan Tran, PhD	Data Mining Expert, Office of the Dean, College of Pharmacy
Tracy Yarbrough, MD, PhD	Director of Center for Teaching and Learning, CNUCOM; Associate Professor of Physiology, CNUCOM

Professional Development
Educational Faculty Development at CNUCOM recognizes and supports faculty in their role as educators. CNUCOM strives to provide faculty educators with the knowledge and skills to best teach medical students in the classroom and at the bedside. The array of programming provides both seasoned and novice educators with the resources and time they need to instruct, guide, train, facilitate, and mentor. The ultimate goal of CNUCOM is to enhance student learning and thus impact the quality of patient care by educating the educators.

The Faculty Affairs and Development Office and the Office of Continuing Education provide faculty with a community of educators with whom and from whom they can learn. The Associate Dean of Faculty Affairs and Development spends approximately 25% of his time assigned to Faculty Affairs issues and organization. Along with the assistance of the Office of Continuing Education, the departments utilize the University's internal resources in the form of talented and experienced faculty educators who share their expertise with colleagues and provide a central infrastructure and protected time for faculty development across the Basic Sciences Department, Clinical Sciences Department, and Clinical Faculty group. When faculty identify a topic of special interest or need and CNU does not have internal faculty with expertise in the topic, the University provides CNUCOM financial resources to invite outside experts for consultation and presentation of the needed topic.

The internal resources that CNUCOM utilizes come from the entire University, which includes other college's faculty, staff, and administration. With approximately 80 faculty who have various levels of expertise, resources for CNUCOM are widely available. Often, faculty volunteer themselves to host a continuing education (CE) program in an area of their expertise, or they may be asked by the Dean or the Vice President for Faculty Development.

Opportunities for professional development are evaluated by the Associate Dean of Faculty Affairs and Development and the Department Chairs. Based on annual reviews of faculty performance, the Department Chairs may recommend to the Associate Dean of Faculty Affairs and Development of additional and/or specific programs for the enhancement of faculty and staff, consistent with the vision and the mission of the College. Such programs include professional development courses, skills development, and continuing education. The Department Chairs may also make recommendations for individualized development programs regarding specific faculty based on their respective annual review. Upon thorough reviews of faculty applications for promotion, the Rank, Promotion, and Retention Committee may also identify needs and recommend areas for faculty development. Strategic planning surveys have been completed to identify faculty needs. Ultimately, the Associate Dean of Faculty Affairs and Development is responsible for implementing a comprehensive program to enhance and keep updated the faculty's educational, academic, and professional development.

Educational Faculty Development programs are made available to faculty who want to strengthen their role as an educator. These programs include skill building workshops (monthly faculty development sessions), grand rounds, and a journal club. Content areas include instruction and assessment, educational research, scholarship, innovations in education, effective use of educational technology, and educational leadership.

From 2016 to early 2019, the Associate Dean of Faculty Affairs and Development and the Office of Continuing Education organized over 200 faculty and professional development seminars covering an impressive range of topics outlined in Table 29 below.

Table 29: Faculty Development Activity (Number of Sessions Offered)

Topic Area	Number (2016-2019)
Research and Scholarly Activity	34
Teaching and Learning	57
Clinical Education	92
Leadership and Diversity	25
LCME Secretariat Webinars	7
ITLE Development Sessions	9
Clinical Pharmaceutical Science	13
TOTAL	**237**

Through these sessions, faculty have opportunities to learn more about their discipline through professional development offerings or identify areas for further development. Since March 2019, CNUCOM has offered an over 60 lecture and speaking events that are free and open to all faculty and staff members.

As indicated in Table 30, speakers are brought in from various institutions in addition to the faculty and staff from CNU. At CNUCOM, we pride ourselves in understanding the nuances of teaching medical education, which is why a number of our speakers bring experience in assessment, learning/pedagogy strategies, and evaluation training and preparation.

Table 30: Faculty Professional Development Presentations

Presenter	Institution	Presentation	Date
Ashim Malhotra, B. Pharm, MS, PhD	CNU College of Pharmacy	*Best Practices for Developing an Innovative and Effective Interprofessional Education and Practice Program*	3/11/19
Elizabeth Joyce, PhD Jeanette Lager, MD, MPH	UCSF School of Medicine	*Writing Effective Narrative Evaluations*	4/24/19
Tracy Peralta, DMD	Guest Lecturer, CDM	*Excellence in Patient Care: Our Destination in Developing Ideal Student-Assessment Strategies*	6/11/19
Darryn Weinstein, DDS	Guest Lecturer	*Assessing Competency*	7/31/19
Ruth Vinall, PhD, Eugene Kreys, PharmD, PhD	CNU College of Pharmacy	*Determination of the Impact of End of Class Quizzes on Student Performance, Self- Reflection, and Satisfaction Levels*	8/8/19
Ghaith Al-Eyd, MBChB (MD), MSc, PhD, MIAC	CNUCOM	*Assessment and Writing a Better Test*	2/5/18
Hoa Huynh, Applications Specialist	CNU Information Technology	*Canvas Training for New Faculty*	5/11/18
Ghaith Al-Eyd, MBChB (MD), MSc, PhD, MIAC	CNUCOM	*Core Entrustable Professional Activities (CEPAs) Guided Bedside Teaching*	7/12/18
Peter Balan, PhD	The University of Adelaide	*Developing Collaborative Learning- Based Classes and Designing Educational Research Studies*	8/7/18
Sambandam Elango, MD	CNUCOM	*Curriculum Overview*	1/23/17
Tao Le, Editor in Chief of USMLE-Rx	USMLE-Rx	*Faculty USMLE-Rx Administrator's Orientation, Questions and Answers*	3/21/17
Michael Bradbury	CNUCOM	*My Journey Through Active Learning in Medical Education*	4/27/17
Suzanne Clark, PhD; Ruth Vinall, PhD; Jose Puglisi, MD	CNU College of Pharmacy and CNUCOM	*Innovations in Teaching Workshop*	6/13/17
Sambandam Elango, MD	CNUCOM	*Writing Critical Learning Objectives*	6/20/17
Susan Ely, PhD	CNUCOM	*Problem-Based Learning*	7/31/18
Susan Ely, PhD	CNUCOM	*Problem-Based Learning*	8/2/17
Susan Ely, PhD	CNUCOM	*Problem-Based Learning*	8/4/17
Susan Ely, PhD	CNUCOM	*Problem-Based Learning*	8/7/17
Susan Ely, PhD	CNUCOM	*Problem-Based Learning*	8/9/17
Suzanne Clark, PhD and Ruth Vinall PhD	CNU College of Pharmacy	*Team Based Learning Workshop*	8/9/17
Michael Bradbury	CNUCOM	*Self-Directed Learning & Highlights from 2017 IAMSE Conference*	10/14/17
Faculty Development Series- Leadership and Wellness			
Presenter	**Institution**	**Presentation**	**Date**
Stacie Walton, MD, MPH	Retired	*Strategies for Developing a Culturally Competent Mindset in Healthcare*	3/4/19
Jen Cavalari, DO	SELF	*Sustainable Empowerment-Leadership Foundation*	1/26/18
Rochelle Frank, MD	CNUCOM	*Creating Wellness in the Workplace*	4/16/18
Jason McDowell	CNU College of Pharmacy	*How to Conduct Productive Meetings*	7/31/18
Peter Tenerelli, PharmBSc	CNU College of Pharmacy	*In Search of Professionalism*	11/10/18
Alvin Cheung, PharmD, MHSA and Heidi Herman,	CNU	*Writing Performance Evaluation*	4/29/17
Heidi Herman, HR	CNU	*How to be an Effective Manager*	10/18/17
Faculty Development Series- LCME			
Presenter	**Institution**	**Presentation**	**Date**
Douglas Campbell, Miriam Nathan,	LCME	*Connecting with the Secretariat: The Independent Student Analysis*	3/8/19

Jeffrey Anderson, and Danielle Bottalico		(ISA)	
LCME	LCME	*LCME Principles for Education to Develop Interprofessional Collaborative Skills*	4/25/19
Ross McKinney, MD	LCME	*Connecting with the Secretariat: Scientific Method*	6/21/19
LCME	LCME	*LCME Myth-Busters!*	9/21/19
Xiaodong Feng, Pharm D	CNU	*LCME Prep Session for Students and Faculty*	1/27/17
LCME	LCME	*Element 3.3 (Diversity/Pipeline Programs and Partnerships)*	7/20/17
LCME	LCME	*Element 3.5 (Learning Environment/Professionalism) and Element 3.6 (Student Mistreatment)*	8/17/17
Faculty Development Series- Clinical			
Presenter	**Institution**	**Presentation**	**Date**
Craig Wetterer, PhD, JD	CNU College of Psychology	*Suicide Risk in the Health Professions*	1/10/19
Lally Pia, MD	CNUCOM	*Tarasoff: To Tell or Not to Tell – You Be the Judge*	1/24/19
Martin Rubin, MD	CNUCOM	*Introduction to Psychosis: Cultural Attitudes and Treatment Approaches*	1/31/19
Andrea Schneider, PhD	CNU College of Psychology	*Autism Spectrum Disorders and Employment*	2/7/19
Ishwarlal Jialal, MC, CH, B, MD	CNUCOM	*Navigating Diabetic Dyslipidemia in 2019*	5/9/19
Irene Predazzi, PhD		*Influenza and Common High-Risk Conditions: Diabetes and Heart Disease*	6/13/19
Meagan Talbott, PhD	UC Davis MIND Institute	*Early Identification of Autism Spectrum Disorder*	7/11/19
ForShing Lui, MD	CNUCOM	*Updates in Neurology*	8/17/19
Reginald Low, MD	CNUCOM	*Updates in Cardiology*	8/17/19
Erin Moline, PharmD	Sanofi	*Updates in Type 2 Diabetes Management*	9/12/19
Cindy Hespe, RPh, FCSHP	Retired	*Providing Safe Care to Patients with Latex Allergy*	10/3/19
Sally Rafie, PharmD, BCPS	Marin County Pharmacist Association	*Hormonal Contraception: Protocol Basics and Common Issues*	1/28/18
Eddie Cheung, MD	Simply Speaking-HIV	*Best Practices for Achieving a Cure for HIV*	4/25/18
Floyd Culler, MD	CNUCOM	*Type 1 Diabetes Past, Present and Future*	6/22/18
Priscilla Hsue, MD	Expert Exchange	*Stable Ischemic Heart Disease*	7/11/18
Vijay Khatri, MD	CNUCOM	*Enhanced Recovery After Gastrointestinal Surgery – A Paradigm Shift*	12/13/18
Faculty Development Series- Basic Science			
Presenter	**Institution**	**Presentation**	**Date**
Islam Mohamed, PhD	CNU College of Pharmacy	*A Negative Modulator of Acute Oscillatory Shear Stress (OSS) – Induced Inflammation and Vascular Dysfunction*	2/8/19
Hongbin Wang, PhD	CNU College of Pharmacy	*C4a Targeting Protease-activated Receptor (PAR) 1 and PAR4, A New Avenue for Therapeutic Interventions*	1/11/18
Aiming Yu, PhD	UC Davis	*RNA Therapeutics: Are We Using the Right Molecules*	6/14/18
Sheryl Krig, PhD	CNUCOM	*Discovery of the ZNF217 Oncogene, Amplified at 20q13, a Breast Cancer Biomarker for Aggressive Disease*	6/26/18
Damon Meyer, PhD	CNU CHS	*Cooperation Between DNA Polymerases in the Repair of DNA Damage*	8/16/18
Zhuqiu (James) Jin, MSc PhD	CNU College of Pharmacy	*An Intriguing Roles of T cell S1P Receptor 1 Signaling in Diabetes-Associated Cardiac Fibrosis*	1/12/17
Valerie Gerriets, PhD	CNUCOM	*Metabolic Reprogramming in CD4 T Cell Subsets Modulates Inflammation and Autoimmunity*	2/9/17
Christopher Wostenberg, PhD	CNU CHS	*An Overview of RNA Biochemistry and Technology*	7/13/17
Hugo Arias, PhD	CNUCOM	*Preclinical Studies of Novel Positive Allosteric Modulators of the A7 Nicotinic Receptor*	8/28/17
Linh Ho, PharmD	CNU College of Pharmacy	*Mitochondrial Sirtuin-3 and Ageing Homeostasis*	9/14/17

CNUCOM provides financial support and protected time for participation in educational development activities and programs related to each faculty member's discipline and their role as an educator. In addition to the faculty and professional development seminars, CNUCOM supports external activities

for faculty including conferences, meetings and workshops, training and education, and other teaching and assessment activities. Each faculty member receives an annual allocation from the Department Chair to be used for such purposes. In the event that unexpected educational opportunities become available, faculty are directed to their Department Chair who can seek approval from the Dean.

Over the past four years, the Department of Faculty Affairs and Development has organized 34 Faculty Development sessions to assist faculty in enhancing their skills in research methodology, publication development, grant procurement, and other research topics. For grant support, the CNU Office of Research has established University-wide committees, infrastructure, and policies necessary for grant submission. These include an Institutional Review Board (IRB), an Institutional Animal Care and Use Committee (IACUC), and an Institutional Biosafety Committee (IBC). Appropriate training in these areas is available to all faculty.

Student Support

The University offers student support in a number of ways. The Office of Student Affairs develops and oversees programming to assist students in the areas of academic support, career advising, and wellness.

Academic Support
Support systems and processes are in place to assist a student when their academic performance becomes a concern. The Academic Progression Policy (Appendix U) details information as to how a student successfully progresses through the curriculum and also informs the student of important milestones and achievements required for graduation. The Academic Progression Policy defines terms and stipulates what occurs when a student's academic performance falls below recognized standards. This policy is first discussed with students at orientation and is available to students via the CNUCOM website.

Academic Advising
CNUCOM has a range of academic advising programs aimed at aiding struggling students. Attention is given to both pre-remediation and remediation measures.

a. **College Masters**
Upon matriculation, students are assigned to small groups, known as Colleges, headed by designated College Masters. The College Master serves as the M1/M2 advisor and is responsible for monitoring an advisee's academic progress and providing career advising. The College Master works to foster a collegial relationship with their advisee that results in the facilitation of optimal student learning and successful progression through the first two years of the curriculum.

Additionally, the College Master serves as a resource for information and guidance on academic issues, career planning, as well as other items related to the student's medical education. The College Master plays a valuable role in helping students proactively identify and address evolving academic problems before they develop into serious academic difficulties. They are available to discuss topics such as interpersonal and communication skills, curricular matters, study strategies, time management, academic performance, and professionalism. Students are required to meet with their College Master at least once

per semester to discuss their academic performance and career plans. College Masters have access to advisees' academic records for the purposes of academic counseling. Other mandatory meetings may occur within each course and academic period.

If a student scores less than 70% on an examination, they are expected to meet with their College Master to discuss their academic performance, study strategies, stress management, wellness, and any other issues impacting the student's performance. The College Master may recommend the student meet with the Assistant Dean of Student Affairs, seek counseling, or utilize peer tutoring services.

b. Assistant Dean of Student Affairs

The Assistant Dean of Student Affairs monitors a student's ongoing academic progress. They meet to counsel students concerned with their academic progress, those identified by performance data, or those referred by faculty or other students as potentially needing assistance.

The Office of Student Affairs notifies a student and their College Master when the student scores less than 70% on a formative or summative examination. In addition, the Assistant Dean of Student Affairs offers both academic and career advising and can make referrals to additional internal or external resources as needed.

c. Student Promotions Committee

The CNUCOM Student Promotions Committee (SPC) is responsible for the application of effective procedures for the evaluation of student performance, which is defined to include both academic achievement and professional competence. The SPC evaluates the progress of all students in the program and recommends progression from one phase of the curriculum to the next based on the stated criteria for advancement. It will recommend appropriate actions when students do not maintain satisfactory academic progress. The SPC may formulate a remediation program for the student based on his/or her unique presentation and academic needs. In such cases, the student may be required to submit reports to the SPC concerning the progress they have made in these mediatory efforts. If a student's academic performance results in a referral to the SPC, the student's College Master is available as an advocate and may attend the SPC meetings with the student. All recommendations are submitted by the SPC to the Office of Medical Education for approval.

Depending on the type of assessment needed, data from the University's Comprehensive Academic Management System (CAMS), the learning management system (CANVAS), and evaluation reporting and data collection tools will be utilized in monitoring student academic progress.

d. Academic Skills Workshops

Included in Orientation and throughout the curriculum (e.g. *Masters Colloquium*), sessions designed to mitigate the stress of attending medical school, improve time management, and optimize study skills. Several sessions are housed within the *Masters Colloquium* course and others are offered as workshops. Examples of previous workshops include: "*How to Manage Your Time*," "*Student Strategies for Success: How to Use Anki*," "*So Many Resources and So Little Time*," "*Step 1 FAQs and Overview.*"

e. Academic Alerts

The academic alert process is used as an early warning sign for a student experiencing academic difficulty. If a student achieves a score of <70% on a formative or summative examination, or if the Course/Clerkship Director has concerns about a student at any time during the course/clerkship, an alert is triggered. This results in notification of the student, the student's College Master/advisor, and the Assistant Dean of Student Affairs. The College Master meets with the student to ascertain the source of the difficulty and to assist the student in developing a plan that will translate into academic success. The student may need referral for peer tutoring, mental health counseling, development of study skills, time management, or cognitive testing. The College Master, Course Director, or student may choose at any point in time to meet separately or collectively with the Assistant Dean of Student Affairs for additional support and planning.

A student can receive academic alerts for multiple courses/clerkships or multiple times within the same course/clerkship. Progress is monitored on an ongoing basis throughout the semester and interventions become more robust if expected progress is not achieved. Student engagement in the process varies, and this is considered at the end of each semester if a student's progression into the next semester is under threat. A full review of academic alerts by course is provided in Table 31 below.

Table 31: Student Academic Alerts

Course	Year	Type of Exam				Total
Behavioral Science	2018	Mid-course 1	Final 0			1
	2019	Mid-course 3	Final 0			3
	2020	Mid-course 9	Final			
CVP	2017	Formative 1 59	Formative 2 53	Formative 3 20	Final 4	136
	2018	Mid-course #1 26	Midcourse #2 15	Final 11		52
	2019	Mid-course 23	Final 20			43
Endocrine	2017	Mid-course 7	Final 2			9
	2018	Mid-course 18	Final 1			19
	2019	Formative 14				
Foundations	2016	Mid-course #1 7	Mid-course #2 7	Final 1		15
	2017	Formative	Mid-course	Final		

Subject	Year					Total
		38	19	29		86
	2018	Formative	Mid-course #1	Mid-course #2	Final	
		38	10	15	16	79
	2019	Mid-course #1	Mid-course #2	Formative	Final	
		19	10	23	6	58
GI	2017	Formative	Mid-course	Final		
		25	9	4		38
	2018	Formative	Mid-course	Final		
		24	4	3		31
	2019	3	10	4		17
Hematology	2016	Formative 1	Formative 2	Final		
		11	19	3		33
	2017	Formative	Mid-course	Final		
		29	15	4		48
	2018	Formative	Mid-course	Final		
		40	8	12		60
	2019	47	7	8		62
MSK	2016	Formative	Final			
		25	4			29
	2017	Formative	Mid-course	Final		
		34	8	5		47
	2018	Formative	Mid-course	Final		
		61	20	19		100
	2019	Formative	Mid-course	Final		
		37	16			
Neuro	2017	Formative 1	Formative 2	Formative 3	Final	
		26	40	24	5	95
	2018	Mid-course #1	Mid-course #2	Final		
		20	47	7		74
	2019	Formative	Mid-course	Final		
		59	16	6		81
	2020	Formative	Mid-course	Final		
		54	31	4		89
Repro	2018	Mid-course	Final			
		13	4			17
	2019	Mid-course	Final			
		10	0			10

	2020	Mid-course 35	Final 8	43
Stages of Life	2018	Mid-course 13	Final 0	13
	2019	Hybrid Summative 5	Final 1	6
Urinary	2017	Mid-course 6	Final 4	10
	2018	Mid-course Hybrid 11	Final 6	17
	2019	Mid-course 19	Final	19
				1308

To better understand the needs of our students and devote proper resources, we analyze the average academic alerts for each course on an annual basis. The figure below illustrates our latest analysis, as of Spring 2020.

Figure 27: Academic Alerts by Course

Academic Alerts Average by Course
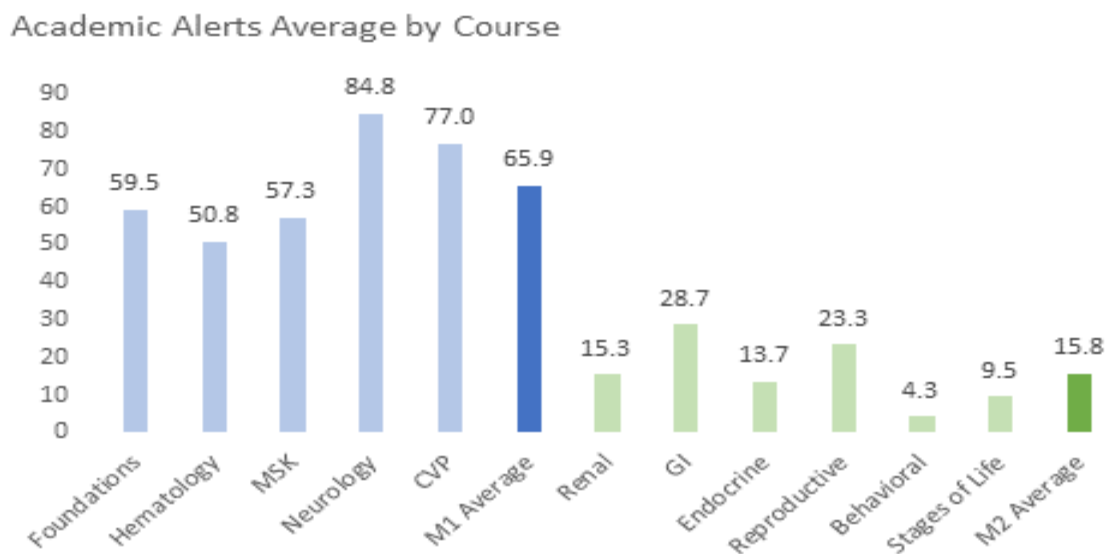
In our planning, we consider that students during their M1 year may need more assistance because they are still adjusting to the CNUCOM program, expectations, and campus culture. The Office of Student Affairs understands this and prepares appropriately. Since 2016, M1 courses we have had an average of 65.9 academic alerts. The number of academic alerts decreases significantly with the start of the second year, indicated by the M2 *Renal* course. The average number of academic alerts for M2s is significantly lower at 15.

f. Tutoring

Students experiencing difficulty in the coursework are urged to seek the help and assistance of the Course/Clerkship Director. Faculty are available during office hours and provide additional support through review sessions. If academic challenges arise, free tutoring services are available through the Office of Student Affairs. Students requiring this assistance may be referred by a course faculty member, their College Master, the Assistant Dean of Student Affairs, or the Student Promotions Committee. Table 32 details the utilization of tutoring services by academic year and academic class as well as the number of students and total hours engaged in tutoring.

Table 32: Tutoring Services

Class	Number of Students That Used Tutoring Services	Number of Peer Tutors	Total Hours of Tutoring Services
AY 2017-2018			
Class of 2019	N/A	N/A	N/A
Class of 2020	14	15	119 hours
Class of 2021	68	N/A	N/A
AY 2018-2019			
Class of 2019	4	3	4 hours
Class of 2020	1	7	12 hours
Class of 2021	55	45	278.75 hours
Class of 2022	83	6	11.25 hours
AY 2019-2020			
Class of 2020	N/A	6	50 hours
Class of 2021	N/A	3	8 hours
Class of 2022	61	24	244.5 hours
Class of 2023	69	3	27 hours

Career Advising

Career advising programming is developed and managed by the Assistant Dean of Student Affairs and the Office of Student Affairs. It begins at orientation and continues through the M4 year. Career advising and planning is accomplished through the CNUCOM Careers in Medicine program, college master advising, M3/M4 career advising, specialty-specific advising, workshops, shadowing opportunities, service learning, and student interest groups.

a. Careers in Medicine Program

One of the most significant decisions a student will make while attending medical school is choosing a specialty in which to practice. The CNUCOM Careers in Medicine (CiM) program is modeled after the AAMC's CiM program and utilizes self-assessment tools and other resources to assist students in their specialty decision. The goal of the program is to help each student narrow their choices and select a specialty focus by the end of spring semester of the M3 year, prepare for application to residency, participate in residency program interviews, and successfully match to the medical specialty and program of their choice.

b. M1/M2 College Masters

For the first two years of the program, the College Master serves as the student's career advisor.

c. M3/M4 Career Advisors

Career advising continues into the M3 and M4 years with ongoing utilization of AAMC resources, student interest group offerings, as well as required and optional workshops. Just prior to the start of the clerkship portion of the curriculum, each student is assigned an M3/M4 faculty advisor who will advise the student from the start of clinical clerkships, through their M3 year, during the application to residency programs and the Match process, culminating in the Match and graduation. These advisors assist students with the task of medical specialty selection, development of their M4 flight plan with selection electives for the M4 year, and preparation for the residency application process. Students are expected to meet regularly with their advisors and students may change advisors upon request to the Assistant Dean of Student Affairs.

d. Specialty-Specific Career Advisors

Specialty-specific advisors are faculty who have current or recent experience at a residency program or have served or currently serve as residency program directors and can provide specialty-specific advising. The Vice Dean of the College of Medicine is instrumental in assisting the Assistant Dean of Student Affairs in connecting students with these specialty-specific advisors. Students interested in more competitive specialties and sub-specialties benefit greatly with respect to their career planning, research opportunities, and application to residency programs.

e. Career Advising Workshops

The Office of Student Affairs provides both optional and required workshops to assist students with career planning. These workshops are offered throughout the academic year. Workshop topics by year include, but are not limited to the following:

M1 Year: *AAMC Careers in Medicine Assessments*
Medical Specialties Mixers
Residency Preparation
Summer Opportunities for M1 Students

M2 Year: *CV and Cover letter Workshop*
Step 1 FAQ
My Step 1 Experience Panel Discussion
Making Your Step 1 Study Plans
Residency Preparation
Planning for the M3 Year

M3/M4 Year: *CV and Cover Letter Workshop*
How to Write Personal Statements
VSLO and Step 2 Planning
Planning for the M4 Year

> *Q&A Potpourri*
> *ERAS & Letters of Recommendation*
> *The MSPE*
> *The Residency Interview*

CNUCOM: *Monthly Medical Specialties Mixers*

In addition to the workshops and resources above, the Office of Student Affairs conducts annual workshops on professionalism, hosts a Women in Medicine panel discussion and dinner, and works with student leaders in planning monthly Clerkship Mixer evening events for the following specialties: Emergency Medicine, Internal Medicine, Family Medicine, Obstetrics/Gynecology, Neurology, Pediatrics, Psychiatry, and Surgery.

Shadowing
Detailed shadowing guidelines are provided to incoming students through the CNUCOM Office of Student Affairs.

Service-Learning Opportunities
Social awareness and accountability are important aspects of medical education. Through community involvement, students gain an understanding of community issues, community assets, and community processes for making change happen. Students engage in real-world issues and social problems, working with community organizations to become part of the solution. A student serving in a community develops a relationship with community members and a deeper understanding of the root causes and broader social issues that contribute to community problems. In all of these ways, service learning is intended to help students learn, understand, and engage with others to develop the skills and attitudes to become culturally competent community-builders in our rapidly changing, diverse world.

Student Interest Groups
CNUCOM students are active in 32 Student Interest Groups (SIGs), Student Government, and Organized Medicine via the Sierra Sacramento Valley Medical Society (SSVMS), California Medical Association (CMA) and the American Medical Association (AMA). These groups are active in showcasing speakers and planning events to further inform and engage students regarding the various specialties and aspects of a career in medicine.

Currently registered Student Interest Groups (SIGs) at CNUCOM include:
1. American Medical Women Association (AMWA)
2. Anesthesiology Interest Group
3. Asian Pacific American Medical Student Association (APAMSA)
4. Basketball Interest Group
5. California Health Professions Student Alliance (CaHPSA)
6. Cardiology Interest Group
7. Christian Medical Fellowship
8. CNU SEVA
9. CNU Sports Medicine
10. Current Affairs Group

11. Dermatology Interest Group
12. Emergency Medicine Interest Group (EMIG)
13. Family Medicine Interest Group at CNUCOM
14. Global Health & Medicine
15. Hospice & Palliative Medicine (HPM)
16. Internal Medicine
17. Latino Medical Student Association (LMSA)
18. Medical Ethics
19. Medical Spanish
20. Metabolic Wellness
21. Military Medicine Interest Group
22. OBGYN Interest Groups
23. Oncology Interest Group
24. Ophthalmology SIG
25. Pediatric Society
26. Physical Medicine and Rehabilitation Interest Group
27. Student Interest Group in Neurology (SIGN)
28. Student Interest Group in Psychiatry
29. Student National Medical Association (SNMA)
30. Surgery Interest Group
31. Technology Engineering and Collaborative Healthcare
32. Ultrasound Society

Two additional student groups are working towards full recognition: LGBTQIA Medical Education Interest Group and Filipino-Americans in Medicine (FAM). A newly formed Student Body Council will also assist with greater student engagement and collaborative leadership across CNU. Students also have the opportunity to serve as representatives on several CNUCOM committees: Curriculum Committee, Phase A Committee, Phase B Committee, Phase C Committee, Inter-professional Education (IPE) Committee, Diversity and Inclusion Committee, and Admissions Committee.

Student Wellness
CNUCOM students are actively involved in supporting the mental and physical wellbeing of the student body through involvement in the CNUCOM Wellness Committee. Students have the opportunity to plan and participate in various wellness programs and activities throughout the academic year:

Ongoing/Year-Round Support Programming
- Belay Buddies- a support program in which students are paired with a buddy for well-being check-ins throughout the academic year
- Big-Sib/Little-Sib- a mentorship program designed to help students navigate the challenges of transitioning into medical school, as well as to provide guidance and friendship throughout their time in med school

Annual and Biannual Event Programming
- Wellness Day- once a semester community building event open to all CNU College of Medicine students, faculty, and staff

- Therapy Dog Day- campus visits from the Sacramento SPCA therapy dogs

Weekly and Monthly Programming
- Walk With a Doc- Sunday walks with students and physicians
- Dance Lessons- weekly instruction on various dance styles
- Wellness Walks- lunchtime walks scheduled every other week
- Yoga- weekly instruction on basic yoga

Students are informed about CNUCOM Wellness Committee hosted programs and activities using the following methods:
- Canvas (Learning Management System) calendar updated on a regular basis
- Student-run communities, such as private Facebook groups for CNUCOM students
- Physical flyers posted on campus bulletin boards and in classrooms
- Digital flyers available on Canvas
- Student body emails
- The University's main calendar
- Messaging from student government officials
- Outlook calendar alerts
- CNUCOM Wellness Committee meetings

CNUCOM also offers several electives that address student well-being including: *Mindfulness-Based Stress Reduction* (MBSR), *Healer's Art*, the *CNU Leadership Course*, and a *4th Year Physician Wellness* elective. CNUCOM also redesigned the Wellness portion of their website to provide students with a concise and clear way to find events, student support services, and campus resources. These revisions include a virtual suggestion box as well as the addition of a physical suggestion box used to elicit feedback and growth opportunities from the students. CNUCOM also has a variety of student relaxation settings and recreational/fitness elements that support student wellness such as an on-campus café, covered patio, student run organic garden, 2 pool tables, 1 ping-pong table, 1 foosball table, an outdoor basketball court, and a weight room that includes 2 elliptical machines.

a. Mental Health Services

Two of three licensed therapists are on campus every day of the week, with varying hours to accommodate students' schedules. These counselors do not teach any classes nor have any evaluative academic role in the students' curriculum. An office has been provided (Counseling Office Rm #157) that offers privacy, and white noise machines have been employed to minimize the possibility of conversations being overhead by other parties. A new office is also being constructed to provide students a location to meet privately with the therapists away from the main campus. Appointments can be requested through email or over the phone. Along with individual therapy, the counselors have made available to students a variety of group sessions and workshops covering topics such as stress, depression, and healthy relationships. The counselors are also available for faculty consultations and behavioral assessments and have also been active participants in CNU events, including student orientation, club day, suicide awareness and prevention programs, wellness day, and time management events. Due to increasing usage of counseling services and attendance at counseling-developed

workshops and events, counseling hours available to students have increased this year, and the number of counselors working with CNU students has increased from two to three.

Financial Support
While CNU does not participate in the Title IV (federal student loan) program, a number of competitive educational financing options are available for those who qualify (see Appendix V). The following are mechanisms that has put in place to educate students about their educational expenses and the different types of funding options CNU that are available.

a. **Interview Day**

During interview days at the College of Medicine, the Financial Aid Manager spends 15 to 20 minutes with potential students covering the following areas:
- Types of funding options available at CNU
- Debt management and budgeting – borrowing responsibly, borrowers' rights and responsibilities, how to shop around for best interest rates on private educational loans, etc.
- Inform potential students that the College of Medicine does not participate in Federal Student Loans (Title IV)
- Provide helpful resources and additional materials on debt management and scholarships (also listed on financial aid website)
- Provide each potential student with a financial aid folder consisting of different private educational loan brochures, SallieMae scholarship search brochure (also listed on website under major scholarship databases), California Northstate University (CNU) brochure, *Financial Aid 101* brochure with tuition and fee table, and Financial Aid contract information
- Inform potential students that all materials received during interview day can also be found on the College of Medicine website

b. **Orientation Day**

During orientation days at the College of Medicine, the Financial Aid Manager presents and reviews the following with the incoming class:
- Types of funding options available
- Debt management and budgeting – borrowing responsibly, borrowers' rights and responsibilities, how to shop around for best interest rate on private educational loans, etc.
- Remind students that the College of Medicine does not participate in Federal Student Loans (Title IV) and therefore does not accept Title IV funding options while students' attend the College of Medicine
- Review helpful resources and additional materials on debt management and scholarships (also listed on financial aid website)
- Provide each student with a financial aid folder consisting of different private educational loan brochures, SallieMae scholarship search brochure (also listed on website under major scholarship databases), California Northstate University (CNU) brochure, *Financial Aid 101* brochure with tuition and fee table, Financial Aid Workshops and Events Calendar, and Financial Aid contract information
- Provide each student with the *Financial Aid Resources at a Glance* brochure with additional resources and links to financial aid, debt management, and scholarships

- Inform students about the mandatory workshop on Student Entrance Loan Counseling covering borrower rights and responsibilities
- Remind students that all materials received during orientation day can also be found on the College of Medicine's website

Military, navy, and the air force recruiters are also invited during orientation to present, review, and answer any questions regarding the Health Professions Scholarship Program (HPSP).

c. Student Entrance Loan Counseling Workshop

The *Entrance Counseling Workshop* is mandatory for all first-time private loan borrowers at CNU, College of Medicine. The Student Financial Aid Office wants to ensure that students understand their rights and responsibilities as an educational loan borrower. Students must complete entrance counseling forms that are kept in students' files. The Financial Aid manager provides students with a simple monthly payment calculator and lender information should students need to contact lenders and review in detail the following areas:

- Life cycle of a loan
- Borrowing responsibly and understanding borrowers' rights and responsibilities
- How to calculate anticipated monthly payments
- How to contact lender(s) should any questions arise
- Repayment expectations and consequences of default

d. Student Exit Loan Counseling Workshop

The *Exit Loan Counseling Workshop* is mandatory for all students who borrowed private educational loans. The workshop is typically set up in the spring, a couple of months before graduation. The workshop covers valuable information regarding private educational loans, focusing on what to expect during repayment. At the end of the session, students will know their basic rights and responsibilities as a private educational loan borrower, available repayment options, how to contact their lender(s) if they experience problems repaying their private educational loans, consequences of default and how to calculate their anticipated monthly payment amount(s). Students are required to complete exit loan counseling forms and a Simple Loan Monthly Calculator form as part of their Graduation Clearance.

e. Financial Literacy Workshops

Throughout the year, the Student Financial Aid Office provide students with financial literacy workshops covering a variety of topics such as Financial Aid 101, debt management, budgeting, saving, student loan default, how to manage credit, prevent identity theft, etc. (Appendix W). The Student Financial Aid Office also provides additional materials and helpful links on:

- Debt management - how to help students graduate with less debt
- Graduating on time
- How to live like a student not a doctor while in school
- Paying on interest accrued on private educational loans while in school
- Applying for scholarships and grants
- How to reduce expenses such as sharing rooms, carpooling, buying only what you need not what you want, etc.

The Student Financial Aid Manager also invites lender representatives and Student Loan Consultants to

deliver debt management workshops and cover different types of loan programs. For example, CNUCOM has secured the following agencies to promote their scholarship programs at all in-house events:

- United States Air Force
- United States Army
- United States Navy

The above agencies have scholarship program opportunities specifically for medical students that are currently enrolled in the health profession fields. CNUCOM currently has Educational Service Agreements (ESA) with the U.S. Air Force, U.S. Army, and U.S. Navy. Medical students have the opportunity to participate with military scholarships under the Health Profession Scholarship Program (HPSP). Currently, 27 students are participants of the HPSP through the Army, Navy, Air Force, or National Health Service Corps that covers tuition and fees throughout the four years of the medical program.

Table 34: Military Scholarships (Health Profession Scholarship Program)

# of Students	Amounts	Agencies/Scholarship Program
11	$1,897,538.46	U.S. Army HPSP
10	$967,184.19	U.S. Air Force Scholarship
5	$718,571.13	U.S. Navy Scholarship
1	$147,893.00	National Health Service Corps

The Student Financial Aid Office also provides the following to each student:

- *Financial Aid Resources at a Glance* brochure consisting of additional resources and links to financial aid, debt management, and external scholarships
- Loan Repayment Programs

All materials provided to students are available on the financial aid website under grants and scholarships. External scholarships and deadlines are also periodically sent via email throughout the year to medical students.

Information and Technology Resources

CNUCOM has adequate library and information technology (IT) resources and staff to support the educational and research needs of its students and faculty. To facilitate an active learning pedagogical format, computers, projectors, microphones, and DocCam are provided in each classroom. Computers and printers are available in the library study space and in the research labs.

The Library is a member of the National Networks of Libraries of Medicine (Pacific Southwest Region) and participates in DOCLINE®, the NN/LM's automated interlibrary loan request routing and referral system. The Library Director also has access to over 1,200 journals on a Pay Per View (PPV) access through OVID. Using this system, the Director can provide copies of articles to faculty, staff, and students within 30 minutes. Access for CNUCOM students and faculty is considered sufficient. The

University Library is shared with the College of Pharmacy. The University will continue to explore opportunities to form or join consortia with other health education organizations.

IT Support
California Northstate University College of Medicine is served by an enterprise-grade wireless network utilizing state-of-the-art access point hardware. All areas are served by 802.11a/b/g/n capable hardware to ensure the utmost in current, future and legacy availability. The network is designed with overlapping fields of radio connectivity to ensure maximum connection uptime and students are granted access through a secure password protected dedicated SSID. The network is constantly monitored by a network engineer for availability, bandwidth, and potential congestion issues. The campus has dual high-speed fiber optic lines supplied through local data and communication companies, SureWest Communications and Frontier Communications, for data redundancy and increased bandwidth resources.

While CNUCOM continues its relationships with the various health systems in the region and develops collaborations and affiliations with hospital information networks, it is important to note that there is complete segregation of the networks between the University and affiliated hospitals (i.e. no HIPAA-protected data exchange from the remote institution or FERPA-protected information not required for the program will occur). Faculty and students at off-campus locations have full access to CNUCOM's educational and reference resources through secured and authenticated access resources. Continuity of access and accessibility of University resources is prioritized so students are able to engage with teaching materials, conduct research, print, review their student records, etc. at all times.

In addition, the IT Director is an ex-officio member of the CNUCOM Curriculum Committee and fully participates in committee discussions as well as in faculty, staff, and student IT training. This has been instrumental in the success of CNUCOM's curriculum mapping, which uses advanced software to connect learning objectives.

Facilities

CNUCOM has a teaching facility that sufficiently supports the education of medical students and provides an active learning environment and experiences by exposing medical students to hands-on techniques and skills in the classrooms, simulated environments, and laboratories. The main facilities are located on the first floor of the CNU building. CNUCOM has two very large classroom auditoriums (10,000 square-feet of total space), each with a seating capacity of up to 160 students. There are eight small classrooms (Masters' classrooms) with a capacity to seat 25 students each.

There is a gross anatomy laboratory with capacity for 90 students, interdisciplinary teaching laboratory of 1,600 square feet with a capacity for 50 students, and a standardized patient/simulated ambulatory care area for conducting the Objective Structured Clinical Examination (OSCE), which consists of ten examination rooms with capacity for five students in each room. CNUCOM also has one Simulation Center, simulating a hospital room equipped with two state-of-the-art mannequins for students to practice hands-on clinical skills with the capacity for 20 students.

CNUCOM also has approximately 2,100 square feet of dedicated research space. The research laboratory has molecular biology lab, tissue & culture lab, microscope lab, cell lab, pharmacology lab

and virology lab and etc. It is fully equipped with advanced imaging systems, cryogenic storage units, environmental/growth chambers, PCR, 500 MHz NMR, and water purification systems. Students have access to the lab during the building's normal business hours of operation and after-hours access through a secure card system. The building is open Monday through Friday from 7:30am-11:30pm and on weekends (Saturday through Sunday) from 8:00am-10:00pm.

In addition, the adjacent building has been renovated and developed to a serve as the CNU Event Center. The Center is utilized equally by CNUCOM and the College of Pharmacy. This building provides an additional 15,000 square feet of space and was acquired for the purpose of increasing space for students to study, relax, enjoy recreational activities, and to provide a venue (with a movable stage) for the hosting of major events. Furthermore, the new building allows for the addition of seven private student study rooms (five students per room), four semi-private study rooms (five to six students per room), and eight individual study carrels. There is a large open study lounge that can accommodate up to 400 students. There are also changing rooms, a workout center, a recreation center with two billiard tables and two ping pong tables, a preparation kitchen, and an audio-visual control room.

CNUCOM strives to provide a safe and secure environment for students while they are on campus. The campus security system includes an on-site (unarmed) security guard during the day and until midnight to patrol the campus and parking lot, to escort students, faculty, or staff to their cars after dark. CNUCOM solely uses card-access to enter the campus during business hours and after-hours. The access cards are only granted to registered medical students, faculty, and staff of CNU. CNU periodically hosts information sessions or workshops on comprehensive emergency and disaster planning.

The security at affiliated community hospitals (Kaiser, Dignity, AHMC, Sierra Vista, and Heritage Oaks) is even higher due to the regulations for staff and patient safety. This includes greater levels of patrolling security guards with around-the-clock coverage as well as emergency and disaster planning.

Staff

CNUCOM assesses the need for staff based on program expansion and workload. The College enjoys some shared resources provided by the University such as centralized functions in IT, Registration, Human Resources, and Facilities services. The current staff dedicated to CNUCOM's administrative functions are identified in Table 33.

Table 33: CNUCOM Full-Time Administrative Support Staff

Name	Position
Thomas Giannini	Administrative Supervisor, Executive Assistant to the Dean
Dr. Juan Urbano Jr., PhD	Director of Assessment and Evaluation
Dr. Anji Khan, DDS	Director of Admissions, Student Affairs, and Outreach; Title IX Coordinator
Samantha Webster	Coordinator of Academic Affairs

Malinda Xiong	Admissions and Student Services Coordinator
Kamau Jamal Abercrombia	Admissions and Student Services Coordinator
Faith Allison	Administrative Assistant- Admissions, Student Services and Outreach
Samantha Xiong	Curriculum Coordinator
La Savanh Linda Inthongpradith	Clerkship Coordinator
Frances Higoy	Elective and Sub-Internship Coordinator
Corrine Baumer	Administrative Assistant - Clerkships
Tasha Staton	Administrative Assistant - Clerkships
Kelsy Harris	Medical Skills Coordinator
Dereck Nguyen	Anatomy Lab Technician
Dr. Shymaa Bilasy, PhD	Lab Manager
Haleema Kaifi	Administrative Assistant – Basic Science
May Yang, M.Ed.	Coordinator – Office of Medical Education

Financial Resources

CNUCOM has the financial resources needed to accomplish the mission and goals of the College. The most recent California Northstate University Audit report will be available on site. As highlighted in the CNUCOM Strategic Plan, CNUCOM has also committed itself to increasing funding for intramural grants, enhancing resource availability, and strategically hiring faculty with strong research backgrounds and experience in securing extramural funding to fit with the research mission of CNUCOM.

To accomplish this, CNUCOM has partnered with local non-profit, Northern California Education Foundation (NCEF), to host an Annual Fundraising Gala that has been very successful in raising scholarship funds for students. Through this partnership, NCEF doubled the amount raised from $70,000 in 2018 to over $130,000 in 2019. With the support of CNU, staff, and students, the event has become very popular and tickets sold out in both 2018 and 2019.

Additionally, the "Fund Our Students" initiative spearheaded by Dean Joseph Silva in 2018, is an internal CNUCOM fundraiser where faculty and staff can contribute to NCEF through automatic payroll deduction. To date, dedicated CNUCOM administrators, faculty, and staff have generously donated approximately $23,000 to the foundation. CNUCOM will continue to incentivize its partners to follow and join the movement.

Strategic hiring of faculty with strong research backgrounds in extramural funding has also enhanced resource availability. In 2018, the establishment of the CNUCOM Center for Translational Medicine led to a 50% increase in mini-grants awarded to students and faculty to conduct research and present at national meetings. This has also resulted in consistent increases in the number of publications by faculty

and students. Notably in 2018, thirty students co-authored eighty-two publications contributing to a 37% increase in total publications. Additionally, of the 89 publications by COM faculty in 2019, 51 were co-authored by students. More recently, CNUCOM has hired a Director for its Center for Research and has planned increased funding for intramural grants to further support scholarly activities.

3. Summary Reflections

The accreditation process itself, particularly the periodic self-study, has allowed CNUCOM to uncover areas that perhaps would not have been revealed as rapidly given our primary focus on the daily training of students and establishing ourselves as a national medical program. The self-study has required intentional and coordinated measurement and reflection of strengths and weaknesses since our inception. Thus, while some trends have been on our radar anecdotally and within committee structures, official five-year trend data and evidence that has resulted from this study sheds new light for the college and will require honest internal conversations and decision-making to address these trends. Particularly, because the emphasis of this data-driven process is forward planning, informed by analysis of recent trends, and identification through the review process the necessary processes for maintaining excellence while correcting deficiencies, faculty and staff have begun to come together to identify preliminary goals and planning for improvement. However, deeper conversations and ongoing assessment will be needed as we refine action plans and continually adapt to the changing landscape of medical education.

1. **Student Learning and Success.** Through commitment to high-quality standards, recruitment of talented faculty and staff, and trial and error in our first five years, we have clearly established a strong program foundation. Our next area of growth is establishing a consistent assessment process and closing the assessment loop. Although efforts to embed assessment into the curriculum were started from the outset, staff turnover, particularly the departure of the previous Director of Assessment and Evaluation has resulted in loss of data and alignment within CNUCOM processes. Despite this, CNUCOM has gone through a rigorous process of mapping its curriculum to CLOs, PLOs, and ILOs. Replication and deepening of our successes, particularly in movement from "Developed" to "Proficient" within learning outcomes and achieving greater clerkship comparability across sites are the next steps.

2. **National Ranking.** Inaugural graduating classes have performed above national averages in assessments and residency placement ("match"). Particularly, USMLE Step 1 mean scores would rank us within the top 20 among national accredited medical schools and the inaugural classes of 2019 and 2020 have had increasingly impressive match rates at 96.3% and 98.9%, respectively. These match rates are well above the national averages of 79.6% in 2019 and 80.8% in 2020, according to the National Residency Matching Program. Maintaining these scores and high performance is key to our establishment as a national leader in medical education. Understanding why we have had these successes, if they are attributed to individual high-performing students, faculty teaching and effectiveness, clinical experiences, and/or a combination of factors will aid us in replicating and improving on these successes.

3. **Adaptive and Flexible Learning Modalities.** As a young, for-profit institution of higher education, we have been able to be highly selective in student admissions and recruitment of

faculty. Accordingly, cohorts are small and dedicated. Distinguished faculty from various fields of specialty, industries, countries, and with international research experience and training are readily available. As a result, we have been able to be adaptive and flexible within our curriculum. This is showcased in our ability to require more SILs, based on student feedback and in the face of crisis, create and offer a Pandemic Elective and virtual CCBLs. This adaptability is in line with our mission as an institution that serves the needs of our constituents, is progressive and innovative.

4. **Student Diversity and Enrollment Management.** Enrollment trends indicate increasing diversity across various categories, particularly by gender identification (female enrollment has increased by 21%) and race/ethnicity (minority student enrollment has increased by 15%); however, we are not currently monitoring other identifiers that may affect student progress and inform our recruitment strategies. This means there is more work to be done in the areas of enrollment management and student services to accomplish our mission of serving a student body that reflects the needs of the region and the state. Acutely aware of the health disparities in our nation and region, we are committed to creating an inclusive learning environment and training students that are sensitive to the increasingly complex, diverse, and intersectional identities of communities they serve.

5. **Student Satisfaction.** Based on external (ISA and AAMCMSGQ) and internal (IR) surveys and student feedback, we have been able to adapt to student learning needs while simultaneously increasing overall student performance. Direct and indirect assessments of student grades and satisfaction surveys reveals that recent changes have corresponded with overall improvement. Although satisfaction with the campus/learning environment is high overall, course satisfaction varies between courses, satisfaction with faculty/preceptors varies between courses and clerkships, and students continue to express dissatisfaction with financial support for the rising costs of medical school. Having a central repository for student data, training on assessment methods, deepening our understanding and use of assessment tools within MedHub and SurveyMonkey to increase response rates and granularity of data have been identified by faculty as a suggestion for improvement.

6. **Student Support.** Similar to inability to close the assessment loop for student learning and success due to faculty and staff turnover, CNUCOM has laid the foundation for student support services within our first five years but still needs to implement consistent measures to ensure effectiveness i.e. that student needs are identified and being met. Particularly, measuring student participation, outcomes, effectiveness, student satisfaction, and how results are communicated and used in decision-making in the areas of academic advising, tutoring, and financial aid.

4. Future Goals and Planning for Improvement

1. **Student Learning and Success.** CNUCOM's Assessment Manual and Program Review are now in place and provide trend data analysis for the first time. Ongoing efforts to "close the loop" can be ensured by doing the following:

- responding to assessment results to make data-driven decisions, investigate causes and factors for success and replicate successes
- using results from the comparability study to inform decision-making and further lines of inquiry
- improving from "Developed" to "Proficient" within PLO, CLO, and ILO course mapping
- the Director of Assessment and Evaluation was hired in August 2019 to improve assessment processes and continuity
- the Chair of the Clinical Medicine Department was hired in June 2020 to streamline the success of clinical courses
- the Coordinator of OME was hired in March 2020 to ensure alignment across accreditation processes
- OME has allocated resources for two additional Administrative Assistants and is currently seeking to fill these positions

2. **National Ranking.** CNUCOM has been able to identify strengths and weaknesses since our inception; the next steps are uncovering why and how, replicating our successes in the areas of student performance and ranking, and continually finding ways to improve. Additionally, the following will be crucial in establishing CNUCOM as a nationally ranked medical program:
- continuing indirect and direct assessments, comparability studies for correlations to identify trends and inform decision-making and resource allocation
- ongoing program review conducted by the OME and Office of Assessment and Evaluation, continued sharing of results with faculty, CNUCOM leadership, and CNU leadership
- drawing on broader CNU partnerships to strengthen the program review process, faculty development, and student development (such as continuing annual IPE Grand Round Activities)

3. **Adaptive and Flexible Learning Modalities.** CNUCOM has demonstrated great innovation in this area. The following action items have been identified to continue this tradition:
- the Center for Teaching and Learning (CT&L) has been established and will need continued support
- the Center for Translational Medicine has been established and a new Director was promoted in June 2020
- the Clinical Case-Based Learning has been implemented throughout CNUCOM courses and virtual and in-person formats will continue to be enriched
- the Center for Research has been established and an Assistant Dean of Research with extensive research and funding experience was promoted in June 2020
- additional resources have been allocated towards grants for student and faculty research and scholarship (SDSSP and CNUCOM mini-grants), continuing professional development, mentorship, development of faculty learning communities, and student programs

4. **Student Diversity and Enrollment Management.** CNUCOM has a compelling educational interest in promoting diversity and is committed to the recruitment, retention, and advancement of qualified students, faculty, administrators, and staff to achieve its mission of academic excellence and community service through diversity and equal opportunity. CNUCOM is pleased with the improvements we have made in a relatively short time-span and with our student success

rates. However, we are aware of the need to be more reflective of our local communities and have identified the following action items:

- through the Office of Assessment and Evaluation, disaggregating and collecting more demographic student data to identify student trends and understand their needs i.e. working, married, have children, etc.
- CNUCOM is currently recruiting an Assistant Dean of Student Affairs
- deepening partnerships with the Office of Student Affairs to inform support services, progression trends, maintain/increase retention and graduation rates, decrease academic alerts and leave of absence (LOA)
- increasing transparency and alignment within OME for student academic interventions, academic alerts, LOAs by providing information to students through various channels in addition to Canvas, the Office of Student Affairs, faculty, deans, mentors, College Masters
- coordinating with CNU colleges and leveraging the CNU Diversity and Inclusion Committee for professional development/training for students, faculty, and staff on the health disparities among communities of color, regional health concerns, diversity and inclusion practices in medicine, generational trauma and its link to health, etc.
- creating pipeline programs for health professions i.e. Summer Camps, to ensure future populations of students, staff, faculty, senior administrative staff are reflective of each other as well as the community
- the Director of Student Diversity and Inclusion Pipeline Programming was promoted in July 2020 and will be dedicated to these goals

5. **Student Satisfaction.** While external and internal surveys exist, the Office of Medical Education and Office of Assessment and Evaluation can have a bigger role in ensuring results are communicated to corresponding leaders, embedded in all learning, and informs decision-making. The following action items have been identified:
- deepening student, staff, and faculty understanding and use of assessment tools within MedHub and SurveyMonkey
- using the accessible SurveyMonkey instrument for instantaneous feedback in addition to CNU OIRQA
- using MedHub for clerkship comparability, analysis, and as an integrated repository for student data across platforms
- aggregating and analyzing student satisfaction information for CNUCOM leadership to inform decision-making and resource allocation
- having training on assessment methods and creating incentives for students, faculty, preceptors on the benefits of assessment to increase response rates and reduce outliers

6. **Student Support.** As the area with the most room for improvement, faculty have deliberated and identified the following action items:
- increasing student engagement in the overall process
- expanding coordination with the Office of Student Affairs to deepen services and improve advising, tutoring, financial aid, and additional resources
- deepening assessment to determine levels of student participation, satisfaction, effectiveness, outcomes, value received from student support services and sharing information to appropriate parties to improve services

- embedding assessment within student services through assessment and evaluation training and development workshops for students, faculty, and staff
- in response to student feedback, CNUCOM has recently developed additional funding streams through the President's Scholarship, Tuition Assistance Scholarship, Community Service and Leadership Scholarship, Research Scholarship, Fund Our Students initiative, and partnerships with the Northern California Education Foundation and Health Professions Scholarship Program

We are very proud of the work we have accomplished in CNUCOM's five years of existence. This program review has given us the opportunity to reflect on our successes, as well as identify areas where we can grow and improve. Our current success is attributed to the dedication of CNUCOM students, faculty, and staff and their collective belief in our mission. As we continue to grow, understanding the changing needs of our students remains a priority. Creating a strong foundation of pedagogy and teaching methods, curricular governance, and administration and staff that support flexibility while adhering to the highest standards of medical education will be crucial to our continued success.

As CNUCOM looks toward the future, our commitment to the community and innovation continues, including planned construction of a teaching hospital, increasing educational collaboration and interweaving with the professional health Colleges of CNU, and expansion of our faculty research infrastructure and portfolios. We are dedicated to enhancing the interactive learning environment, creating an inclusive and transformational Healthcare Sciences hub that will prepare the next generation of healthcare providers to serve our diverse regional and national communities.