Program Review 2022

Submitted to VP of

Institutional Effectiveness

and Accreditation

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GLOSSARY of terms and acronyms

AACP- American Association of Colleges of Pharmacy

ACPE-Accreditation Council for Pharmacy Education

APPE- Advanced Pharmacy Practice Experience

CANVAS – the learning management system used in the College since 2015

CAPE-Center for the Advancement of Pharmacy Education

Capstone- Assessment taken at the end of the P3 year

CAS-Clinical and Administrative Sciences Department

CE - Continuing Education

CHS – College of Health Sciences

CLOs-Course Learning Outcomes

CNUCOP- California Northstate University, College of Pharmacy

CNSU- California Northstate University

CoCuLOs-Co-Curricular Learning Outcomes

COM-College of Medicine

COP-College of Pharmacy

CPJE-California Pharmacy Jurisprudence Examination

CSI-Classroom Supplemental Instruction Support

CSUS- California State University, Sacramento

DEC- Dean's Executive Committee

DOCLINE- interlibrary loan system

EED-Education Experiential Department

ExamSoft- The on-line assessment software for administering exams

HPLC-High Performance Liquid Chromatography

IACUC-Institutional Animal Care and Use Committee

IBATs-Individual-Based Application Tests

ICATs-Individual Cumulative Assessment Tests

I**LOs**-Institutional Learning Outcomes

IPE-Interprofessional Education

IPPE-Introductory Pharmacy Practice Experience

IRATs-Individual Readiness Assurance Tests

IRB-Institutional Review Board

LLC- Learning Library Center

LPPK-Longitudinal Pharmacy Practice Knowledge Exam

Milestone - cumulative and comprehensive examination taken by P1 and P2s

MMI-Multiple Mini Interviews

NABP-the National Association of Boards of Pharmacy

NAPLEX -North American Pharmacist Licensure Examination

OAA-Office of Academic Affairs

OSA-Office of Student Affairs

OSCE-Objective Structured Clinical Examination

PAC-Preceptor Advisory Council

PBS-Pharmaceutical and Biological Sciences Department

PCOA-Pharmacy Curriculum Outcomes Assessment

PEC-President's Executive Council

PLO-Program Learning Outcomes (PAGE 16)

PRC-Longitudinal Laboratory Practicums

PRIDE- Student organization - Professionalism, Responsibility, and Involvement in my Dedication to Excellence

SAN- Storage area network

SI-Supplemental Instruction

SWOT Analysis-Strengths, Weakness, Opportunities, Threats

TBATs-Team-Based Application Tests

TBL-Team-Based Learning

TCATs-Team Cumulative Assessment Tests

TRATs-Team Readiness Assurance Tests

Turning Point- Clicker technology used in the classroom

UCD- University of California, Davis

WSCUC-Western Senior College and University Commission

1. Introduction

Context for the Program Review.

As part of its efforts towards continual improvement of its programs, and to maintain accreditation with WSCUC - the Senior College and University Commission - California Northstate University has made a commitment to review its programs at least every five years. This review is of the four-year Doctor of Pharacy (PharmD) program at the California Northstate University College of Pharmacy (CNUCOP).

The last review of the PharmD program was completed in Fall of 2017. That review covered relevant processes and data from the program's inception and first student intake in Fall 2008 up to and including 2017.

The review team, who read the report and met faculty and staff during a campus visit in December 2011, identified a number of strengths and commended the College in particular for its commitment to implementing Team-Based Learning (TBL), for its approach to strategic planning, and for embracing and actualizing the concept of an outcomes-based assessment model. Areas identified by the review team for improvement or further development related to: (i) the heavy workload of hub coordinators, (ii) identification in the curriculum as to when, how and where students develop specific professional skills, (iii) validation and sustainability of the assessment initiatives, (iv) identification of Inter-Professional Education (IPE) opportunities, and (v) making better use of the mock pharmacy resource. The College embraced these recommendations, so that during the last five years each has been addressed.

The program review reported here covers new data for the time period from Fall 2017 through to Spring 2022, covering the last five academic years (from 2017-2018 to 2021-2022) and applicable data on six cohorts of PharmD students (the graduation classes of 2015 to 2020). Where it is helpful some data from the first program review and data on previous years and classes will be included for comparison purposes.

An Inclusive Approach for the WSCUC Five-Year Program Review.

CNUCOP adopted a careful, progressive, and inclusive approach in conducting and evaluating the work that is reported here. For the process of strategic planning and for developing and addressing growth opportunities we consulted several College and University stakeholders including students, preceptors, and external consultants. For example, the CNUCOP Curriculum Committee regularly organized student focus groups to identify and collect feedback from CNUCOP students, and this was later expanded to include feedback from the newly established mechanisms, such as Student Town Hall meetings, among others. As work progressed and the College began collecting relevant data and evaluation feedback for assessing ongoing efforts, the SPC incorporated the ideas in the planning and execution stages. At each step, new efforts in all areas were brought to the Dean's Executive Council (DEC), where they were carefully deliberated upon and considered, and if adopted, were earmarked for continuous quality improvement through assessment. This serves to highlight CNUCOP's assessment-driven and evidence-based approach in creating and implementing a progressive, learner-centered, and timely strategic plan.

Data Curation and Stakeholder Engagement.

We adopted a careful and inclusive approach in collecting and analyzing data reported here. Our collaborative efforts included several stakeholders such as faculty; staff; Chairs of the three departments of Pharmaceutical and Biomedical Sciences, Clinical and Administrative Sciences, and Experiential Education; Chairs of the CNUCOP Standing Committees, namely the Curriculum Committee, Assessment Committee, and Admissions Committee, Faculty Orientation and Mentorship Committee; and the Deans of Research, Student Affairs and Admissions,

Academic Affairs, and Program Development and Accreditation. Also included were the Director of Assessment and the Co-Director of the CNUCOP Center for Teaching and Learning.

Report drafts were shared with CNUCOP faculty and staff for comments and feedback at an All Faculty and Staff Meeting. This report was presented to the Dean and the Dean's Executive Council and finally to the Vice President of Institutional Effectiveness and Accreditation.

This program review uses data collected by *the Assessment Committee, the Office of Academic Affairs, the Office of Student Affairs and Admissions, and the institution's Office of Institutional Effectiveness* in order to facilitate data-driven decision making regarding strategic planning in general and curricular change more specifically. The program review self-study was ongoing throughout much of 2021-2022, with department chairs, committees, faculty and staff, and college leadership collating and reviewing evidence and data compiled for a number of exercises, including various semester and annual reviews of curriculum, faculty, and student outcomes, Faculty Retreats, Boot Camps, evaluation of the Strategic Plan, Accreditation Council for Pharmacy Education (ACPE) site visits, or specifically for the program review itself.

Structure of this WSUSC Five-Year Program Review. The CNU **Program Review Handbook** has been used as a guide to structure this report. To orientate the reader a brief background to the College is provided first. Evidence about *program quality* is then presented, including material about (i) students, (ii) the curriculum and learning environment, (iii) student learning and success, and (iv) faculty. Evidence about the *viability and sustainability* of the program follows, and includes: (i) demand for the program, (ii) faculty resources, (iii) student support, (iv) information and technology resources, (v) physical resources and facilities, (vi) staff resource, and (vii) financial resources.

The Office of Accreditation has overseen the preparation of the report with the input of various faculty, either individually or through Committees, and the College leadership team. Additionally, a portion of the data provided in this report are drawn from the College's assessment plan and annual assessment reports since the previous review. Faculty has helped review data, made recommendations and generated action plans based on the results. Any curricular change suggestions have been implemented, with Faculty agreement, through the Curriculum Committee.

A Program Review Committee was convened to undertake the review and prepare the report, and included the following people: Dr. Ashim Malhotra (Lead), Dr. Justin Lenhard (Co-writer), Dr. Tiffany-Jade Kreys, Dr. Eugene Kreys, Dr. Islam Mohamed, Dr. Tuan Tran, and Mr. Ryan Walters.

COLLEGE BACKGROUND

CNUCOP received pre-candidate accreditation status from the Accreditation Council of Pharmacy Education (ACPE) in June 2008 and admitted its first cohort of students in fall the same year. Full accreditation status was awarded in June 2013 and continued for a second 2- year period in June 2015.

The most recent site visit by ACPE took place in November 2020. CNUCOP's Doctor of Pharmacy (PharmD) program received six years of accreditation, until 2027. With the ongoing two years of accreditation as of 2020, this resulted in an eight-year overall accreditation for the PharmD program. See *Appendix 1* for summary of the College's accreditation history since the last review.

The first WSCUC *Program Review* was completed in 2011, encompassing the first three academic years of the

College's operation. Since then the College has evolved, such that there have been a number of key activities, events and developments that have helped shape the College, please see the next section for a summary of substantial changes occurring in the most recent strategic plan cycle, over the past three years (see *Appendix 2* for list of key milestones).

Examples of changes that were instituted during the time of the previous WSCUC program review and those that were continued include: the development of a College Strategic Plan, which was considerably expanded and revised in the academic year 2019-2020; a partnership in 2013 with the Business School at Sacramento State University to offer a joint Executive MBA pathway for PharmD students; an expansion in physical facilities as a result of a campus relocation to the city of Elk Grove in 2014; changes in the leadership body; the introduction and/or revision of policies and procedures that have helped streamline various student and faculty processes, such as academic progression, promotion procedures, faculty evaluations and annual performance reviews. Revisions to the curriculum have occurred, and expansion and development of IPPE and APPE sites, as well as student fraternities and organizations have followed as the student body has grown.

In May 2014 the COP moved from its original site in Rancho Cordova to a larger facility in Elk Grove. The Elk Grove Academic Center houses the College of Medicine and the College of Pharmacy, and includes five large classrooms, eight laboratories, a library, 16 study rooms, a cafeteria, and various offices and resources, such as Human Resources, Institutional Effectiveness, Continuing Education, Admissions, Financial Aid, Student Affairs, Alumni Relations, and IT.

Since the previous WSCUC program review, CNUCOP has invested considerable resources for the expansion of its physical facilities which now include 1)a full-functional, 4,000 square feet state-of-the-art wet laboratory space that houses medicinal chemistry, pharmaceutics, physiology, and pharmacology equipment, which has resulted in CNUCOP housing millions of dollars in grant funding from the NIH, professional organizations, and private foundations; 2) the development of an animal facility for research; 3) expansion of the CNU Simulation Center and our interprofessional education program; and 4) the building of the Advanced Pharmacy Practice simulation laboratory, fully equipped with 11 computer stations, each operational using the Pioneer Rx Software for teaching pharmacy students daily operations associated with community pharmacies.

The university is committed to building a 250-bed teaching hospital in partnership with the Sacramento Kings in Natomas. In 2020, the city approved initial plans. To be constructed at an estimated cost of $900 million, the CNU Hospital and Medical Center is poised to have a longlasting and significant impact on community health, jobs, and the training and placement of CNU's and others' pharmacy and medical graduates.

SUBSTANTIAL CHANGES AT CNUCOP SINCE 2019

Xiaodong Feng, Pharm.D., Ph.D., Appointed as Dean of CNUCOP. In August 2019, Xiaodong Feng, Pharm.D., Ph.D. assumed the position of Interim Dean of CNUCOP. In September 2019, the University Board of Trustees and the President appointed Dr. Feng to the position of Dean. Dean Feng has served as a founding faculty member for CNUCOP. As a practicing oncology pharmacist and leading cancer researcher, he was a part of the university leadership group that designed the initial curricular structure for the PharmD program. He also taught in the program and served as a course coordinator and instructor for over six years, receiving numerous awards for teaching, research, and community service. In the years since then, he served the University as a founding faculty member for the College of Medicine, and later, as Associate Dean of Student Affairs and Admissions at the College of Medicine for five years, along with, the position of University Vice President of Student Affairs and Admissions. His strong history of relationships with both the University and the community at large were instrumental in

facilitating multiple collaborations, such as the establishment in 2017 of the CNU Annual East and West Health Fair. Over the past year, Dean Feng has enhanced communication, and contributed to a positive team environment, rallying strong support for CNUCOP from the community and university leadership. Dean Feng was recently awarded his third patent based on his research in the field of oncology.

Establishment of the Office of Curriculum and Program Development. An example of leveraging this positive connection with the University was the creation of the new Office of Curriculum and Program Development (OCPD), subsequently transitioned to the Office of Accreditation and Program Development. In February 2020, Ashim Malhotra, Pharm.BS, M.S., Ph.D., FAPE, Associate Professor at CNUCOP, was appointed as the Assistant Dean of Curriculum and Program Development. In this role, he oversees programmatic, curricular, interprofessional education (IPE), simulation, and community outreach expansion of the program. Dr. Malhotra works hand-in-hand with the Curriculum Committee to review and evaluate curricular content in accordance with ACPE standards and the CAPE 2013 Outcomes, which are now imbibed in the Standards. With the leadership of Dr. Malhotra, the OCPD has been vastly increasing the community and regional footprint of the College by enhancing existing collaborations and building new partnerships to realize CNUCOP's mission of "advancing the art and science of pharmacy". Dr. Malhotra also serves as the Founding Director of the University Institute of Teaching and Learning Excellence, overseeing faculty and professional development support programs. The creation of this office, especially during these challenging times, underlines the institutional commitment to further support and enhance CNUCOP.

Appointment of New Assistant Dean of Research. Dr. Leo Fitzpatrick, who served as the Assistant Dean of Research, retired in June of 2020 after his promotion to full professor. In preparation for this transition, Ruth Vinall, Ph.D., was appointed initially as Interim Assistant Dean for Research in the fall of 2019 and has since transitioned into the full position. Dr. Vinall is an NIH-funded researcher, academically prepared through the UC Davis research program, and has been a CNUCOP faculty member for over ten years. Her passion for research and experience has allowed her to seamlessly transition into this new role and continue the momentum for faculty engagement in research with new collaborations and ideas. In addition to her own research, Dr. Vinall has promoted research throughout the institution by successfully organizing and hosting the 2019 CNU Translational Research Seminar. Under her guidance, a CNUCOP infectious disease pharmacy practice faculty member, Dr. Justin Lenhard, received the prestigious 2019 AACP New Investigator Award.

Merger of Clinical and Administrative Sciences and Experiential Education Departments. Following the March 2019 ACPE site visit, the College developed and implemented a plan to enhance coordination, expand outreach, place faculty at practice sites, improve student readiness for IPPE and APPE rotations, and redistribute faculty workload. To achieve this goal, in the summer of 2019, CNUCOP initiated internal restructuring and administratively merged the Departments of Clinical and Administrative Sciences (CAS) and Experiential Education (EE). Jeffrey Nehira, Pharm.D., FCSHP, was appointed Chair of the merged CAS and EE departments. Dr. Nehira brings many years of pharmacy and management experience to CNUCOP, having worked in positions of increasing responsibility within the Kaiser pharmacy and Dignity Health systems in California. Under his leadership, Jason Bandy, Pharm.D., FCSHP, was hired as Vice- Chair and Associate Professor in the EE department. Dr. Bandy is a seasoned regional leader in pharmacy education and practice and has a strong academic and practice background in pharmacy.

Promotion of Faculty to CAS and EE Leadership Vice-Chair Positions. With the merger of the CAS and EE departments**,** care was taken to create an administrative support structure consisting of the establishment of two CAS Co-Vice Chairs. This change was intentionally created to leverage the diverse expertise of department

personnel and maximize the performance of our faculty. The Vice Chairs assist with general departmental oversight and with the daily administration of administrative duties. Erika Titus-Lay, Pharm.D., BCPS, BCPP, and Welly Mente, Pharm.D., were promoted to the positions of Co-Vice Chairs for CAS. Dr. Erika Titus-Lay has served the College as the committee chair of the Faculty Development and Orientation Committee, as well as Vice Chair of the Curriculum Committee. Dr. Mente retains the position of Director of the CNUCOP Residency Program. Drs. Titus-Lay and Mente have made valuable contributions since their appointments in the fall of 2019, including refinement of a high-quality pharmacy education program at CNUCOP. Jennifer Courtney, Pharm.D. (and a CNUCOP Class of 2015 alumnus), was promoted to the position of IPPE Director as a result of her leadership skills and strong ties to the community through her continued service in professional pharmacy organizations. In 2019, she was the recipient of the California Pharmacist Association (CPhA) New Practitioner Award. Currently, she also serves on the CPhA Board of Trustees.

Communication among the new leadership members of the College has been an important element in creating a high-functioning team. The chair of the CAS/EE department and his Co-Vice Chairs meet regularly as a team and also with the department faculty to ensure clear communication. In addition, the CAS/EE chair and Co-Vice Chairs are members of the Dean's Executive Council (DEC), along with the newly appointed Assistant Dean for Research and the Assistant Dean for Curriculum and Program Development, the Assistant Dean of Student Affairs and Admissions, and the Associate Dean of Academic Affairs. The Dean also has frequent group meetings with the office supervisors and department chairs.

Considerable effort was expended to build a strong and cohesive team through enhanced communication and regular engagement among the administrative staff and faculty, as well as with students.

ENHANCEMENT OF PROGRAM QUALITY: EVIDENCE OF THE NEW LEADERSHIP TEAM EFFECTIVENESS

The above-mentioned substantial changes have served to reenergize CNUCOP in vastly improved communication among all stakeholders, including students and our external stakeholders such as preceptors. As a result, College culture, student confidence, and faculty engagement have all improved, as evidenced by the success of our students.

Interprofessional Education. The College has built a substantial interprofessional education (IPE) program that starts from the P1 year and extends didactically into the P3 year, and in APPE rotations beyond that. The University IPE Director, Dr. Malhotra, also serves as the lead for the College's IPE efforts, and has built and operationalized a multiparty collaboration that includes the CNU colleges of Medicine, Psychology, and Health Sciences, and the California State University (CSU) at Sacramento's School of Nursing, and the Samuel Merritt University School of Nursing.

IPE at CNU includes multiple modalities of teaching including 1) didactic introduction, 2) content- based high-fidelity simulations, 3) hospital-based high-fidelity simulations, 4) interprofessional case conferences, and 5) an innovative national collaboration in a new area of IPE called "IPE Hotspotting" which is offered as a P3 elective. At least seven IPE events occur throughout the CNUCOP Pharm.D. curriculum and specific elements are considered by the CNU IPE Committee for further enhancement each year. For example, in AY 2019-2020, in collaboration with six CNU medical, psychology and pharmacy faculty, and with support from the respective Deans of the CNU College of Medicine and the College of Pharmacy, an "IPE Grand Round" was created to teach 250 medical, pharmacy, and

psychology learners about the clinical management of stroke and transitions of care, a complex and difficult topic in neurological practice, which was designed and led by physician faculty members.

Our concerted effort in IPE has been recognized by a national podium presentation in 2019 and two podium presentations in 2020 at the AACP Pharmacy Education meeting to share our IPE approach, and the publication of manuscripts outlining CNU's model for Comprehensive, Integrated, Multimodal IPE (CIM-IPE) program. CIM-IPE includes course and student level assessments based on adopted national models, which inform program-level and institutional assessments at CNU.

As stated above, CNUCOP has many co-curricular IPE events that build on the CIM-IPE's required curriculum. These events are described in detail under Standards 3 and 4 below and offer an insight into how our co-curricular approach informs, enriches, and compliments elements of the required curriculum.

The CNUCOP Simulation Program. To enhance the 1) integration of the foundational sciences with the clinical sciences, 2) to help students "connect the dots", and 3) to augment IPPE and practice readiness, the Assistant Dean of Curriculum and Program Development (AD-CPD) collaborated with pharmacy practice and pharmaceutical sciences faculty to design and implement the CNUCOP Simulation Program. The Simulation Program currently consists of two curricular arms – an integrated clinical simulation and a community pharmacy simulation experience, both of which were placed in the longitudinal practicum courses in the P2 year and are a mandatory requirement for all students.

The Integrated Cardiovascular Simulation (ICS) is a high-fidelity simulation hosted by the CNU Simulation Center and is meant to incentivize P2 learners to integrate what they learn in the didactic setting reading cardiovascular pathophysiology and pharmacology (congestive heart failure and arrhythmias) with initial pharmacotherapeutic thinking to enhance their clinical decision making. ICS also included detailed instruction on SBAR communication and empathy- training for patient and family counseling. It was a proud moment for the College to present this innovation at the 2020 national AACP Virtual Pharmacy Education meeting as a podium "mini- session".

Similarly, working collaboratively with the CNUCOP Center for the Advancement of Pharmacy Practice (CAPP), the AD-CPD created a Community Pharmacy Simulation to instruct learners in risk factors, prevention strategies, and pharmacy management for medication errors. The simulation was operationalized through the CNUCOP Advanced Pharmacy Practice Laboratory (APPS), and involved medication reconciliation including appropriate protocol solutions for medication errors. Both events are assessed through pre and posttests and perception surveys. The CNUCOP Simulation Program aims to enhance learner integration of conceptual understanding with pharmacy practice and IPPE readiness.

Enhanced Faculty Development and Productivity.

CNUCOP provides multiple mechanisms to support the professional development of our faculty. CNUCOP is a teaching-primacy institution that recognizes and supports discovery and Scholarship of Teaching and Learning (SOTL) research. There is substantial evidence of growth in funding and research productivity. CNUCOP now houses multiple research grants from the National Institutes of Health (NIH) and the US Department of Defense in various disease states, and from professional organizations such as the American Association of Colleges of Pharmacy (AACP), American Society of

Health System Pharmacists (ASHP), and Team Based Learning Consortium (TBL-C).

CNUCOP already houses an NIH R15 grant of which Dr. Ruth Vinall serves as the Principal Investigator. Dr. Fakhrul Ahsan, Distinguished Professor in the Department of Pharmaceutical and Biomedical Sciecnes serves as Principal Investigator on NIH-fudned grant projects. In AY 2019-2020, our faculty independently and in collaboration have successfully obtained further extramural and intramural funding. Dr. Justin Lenhard, assistant professor in the CAS Department was awarded the 2019 AACP New Investigator Award as Principal Investigator; and again in 2022, Dr. Jennifer Courtney, assistant professor and Dr. Ashim Malhotra, associate professor this competitive research grant; Dr. Tuan Tran of the CAS Department collaborated on an NIH R21 funded grant as a co-investigator, Dr. Ashim Malhotra of the PBS Department served as a co-investigator on an extramurally funded SOTL grant, while seven CNUCOP faculty received intramural funding from the CNU Institute of Teaching and Learning Excellence (CNU-ITLE), a university-wide institution that supports faculty development and SOTL. A United States patent for novel cancer treatment strategy was issued to Dean Feng recently, making it his third patent based on his work in CNUCOP. Additionally, CNUCOP continued its practice to incentivize faculty research through the CNUCOP Seed Grant Funding mechanism. CNUCOP also continued to incentivize Pharm.D. learner engagement in research by supporting the annual Summer Research Fellowship which resulted in the competitive selection of six students to conduct faculty-mentored research in AY 2020-2021. The College is committed to expanding its research program and is recruiting senior NIH-funded faculty who will further enhance faculty mentoring and support at our program.

Enhancement of Program Quality- A Focus on Faculty. The College takes pride in the fact that three CNUCOP faculty were promoted in academic year 2019-2020. Tibebe Woldemariam, Ph.D., was promoted from Associate to Full Professor in the Pharmaceutical and Biomedical Sciences (PBS) department, while Olivia Phung, Pharm.D., was promoted from Assistant to Associate Professor in the CAS department, and recently retired Leo Fitzpatrick, Ph.D., was promoted from Associate to Full Professor in the PBS department. Three additional faculty were promoted in academic year 2020-2021. Tony Eid, Pharm.D., Welly Mente, Pharm.D., and Justin Lenhard, Pharm.D. were promoted from Assistant to Associate Professors. This has reinforced positivity, encouragement, and engagement in the three departments.

Additionally, CNUOP has been leading the university effort in streamlining the process of faculty ranking and promotions. Dr. Linda Buckley, Associate Dean of Academic Affairs at CNUCOP, has been serving as the chair of CNU University Appointments, Ranking, and Promotion Committee

Importantly, CNUCOP faculty were also recognized for national and professional service, such as Matthew Horton, Pharm.D., Assistant Professor in the Department of CAS and a second-year faculty member, was elected to serve as the President of the California Society of Health-System Pharmacists (CSHP); Peter Tenerelli, Pharm.BS, an Assistant Professor in the Department of CAS serves as President-Elect of the Sacramento Valley Pharmacists Association (SVPhA); and Jennifer R. Courtney, who received the CPhA New Practitioner Award, has been appointed as to the Board of Trustees for CPhA; Ashim Malhotra, Ph.D. was elected a lifetime Fellow to the national Academy of Pharmacology Educators of the American Society of Pharmacology and Experimental Therapeutics (ASPET), one of twenty-two faculty from across the United States.

An Enrichment of the CNUCOP Learner Experience and its Impact on Learner Achievements. CNUCOP adopted a three-pronged holistic approach in 2019-2020 to enhance student satisfaction

through augmentation of student support services, development of seven communication strategies, and implementation of a variety of learner-centered programs such as the pre-matriculation Pharmacy Primer Program (a pre-matriculation program, offered free-of-cost to prepare incoming students for the rigor of pharmacy school through focused preparation in the foundational sciences, calculations, and math concepts used in pharmacy).

Furthermore, following the Site Visit, the Office of Student Affairs and Admissions (OSAA) enhanced its learner-centered "Career Development Program" (CDP) to assist students in identifying professional goals and supporting the achievement of these goals. The EED collaborated with OSAA to incorporate the newly developed Professional Career Development Seminars (PCDC) into the preparedness programs. Our Professional Career Development Program encompasses 1) Professional Career Development Series (PCDS), with seminars and workshops on "resume, CV, and cover letter" writing, residency and fellowship application, 2) Round Table sessions with external pharmacy speakers to broaden students' exposure to diverse career pathways within pharmacy, 3) pharmacy internship and networking fairs, and the 4) "e-portfolio system" -an electronic platform for tracking and self-assessment of student achievements and progress towards professional goals.

The current Dean is working to develop educational and scholarly collaborative relationships with the university and hospitals in Vietnam (so far we have signed 2 MOU). Furthermore the Dean has proposed several research Centers to capitalize on expertise and interests which exist among the Faculty. To date, funding has been provided for four different Centers:

1. Center of Excellence in Teaching and Learning (CETL) to support CNUCOP educational endeavor.
2. Center for Advanced Pharmacy Practice (CAPP) to support the newly developed responsibilities of the pharmacy profession, for e.g. medication therapy management, immunization, wellness programs
3. Center for Geriatrics and Wellness (CGW) to support the greying population in health and wellness
4. Center for Outcome Research (COR) to support the outcome data from the other centers as well as any research endeavors from faculty and any professional organizations in the community.

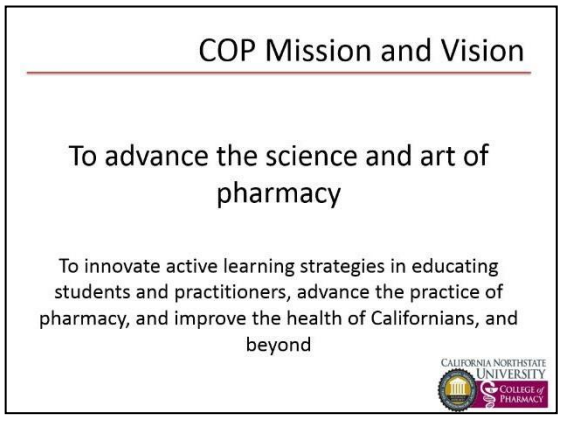
The Dean's Executive Committee (DEC) meets every week and is the main College body around which decisions are formulated and acted upon. The Faculty meet once a month to exchange information, discuss initiatives, and provide feedback on college and student related affairs. Annual evaluations of faculty started in 2008; they serve as a record of past achievements and provide an opportunity to review progress and develop short and long-term development plans; those plans are then used in the budget cycle to ensure funds are available to support professional development. Faculty receive development funds each year to support attendance at conferences, for research, or for other activities that enhance professional growth. Cadres of staff members from various departments, including those with academic support and those with operational support responsibilities, also participate in outside courses and workshops.

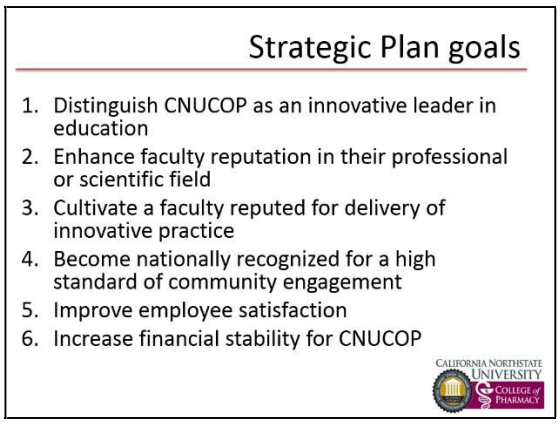
The College has embraced a role in public health, particularly service to at-risk populations and those with actual and likely compromised health literacy. Facilitated by our faculty, the College has implemented or participated in a number of health fairs and community outreach events. Students provide health education, medication management, CPR training; they participate in public health events (blood pressure screenings, flu vaccine clinics, drug abuse education, multicultural health fairs), leadership activities (serving as a Student Ambassador for a semester, serving as a student organization officer), and advocacy activities (participate in Legislative Day, meet with government officials to promote a current Rx bill, register voters on campus and inform voters of current Rx focus pros and cons, shadow a state or national professional association executive member). These events have become a significant part of the College's culture, with students often taking the leadership not only to implement such fairs, but also to cultivate relationships with various community partners. Our inaugural campus-wide health fair in October 2013 included participants from the *California State*

University-Sacramento (CSUS) School of Nursing, Rite-Aid, Walgreen's, Leader Pharmacies, University of the Pacific School of Pharmacy, Sacramento County Sheriff's Office Youth Services Division, Placer County Immunization Branch, Sierra Donors Services, Health Education Council, Anytime Fitness, Script Your Future, George McQueen and Associates Accounting Services, American Heart Association. Since the inaugural event, health fairs and outreach events have become regular features of the Colleges' co-curricular program, with students working towards achieving the program's co-curricular learning outcomes.

The development process for the Strategic Plan was initiated at a retreat in 2012 attended by faculty, administrators, student leaders, preceptors, and members of the University Board of Trustees. With the aid of a consultant, the group conducted a SWOT analysis and identified key impacts and seven key strategic initiatives to help ensure congruence between concurrent strategic planning initiatives by the COM and University. Subsequently a Chair was appointed for each strategic initiative, and a director was appointed to ensure integrity, continuity, and cogency of the entire plan and resultant document. The Dean at the time appointed all faculty and staff to one of the seven strategic initiative workgroups under the direction of that workgroup's chair. Each workgroup included at least two PharmD students and two preceptors. Each group worked to adjudicate goals, strategies, tactics, timelines, persons' responsible, and the resources needed to meet the goals. Upon completion of the plan, the faculty reviewed the entire document to resolve any differences and vote on each component of the document. Staff also were provided a copy of the document for their input. The Strategic Plan was then voted on, approved by the President's Executive Council (PEC) and the CNU Board of Trustees, and formally published in 2014 (see below for Statements of the Mission, Vision and Goals) .

CNUCOP Mission, Vision, and Goals: 2014-2019





For each strategic goal strategy and tactics were identified to help achieve the goal and for each strategy a rubric was developed for measuring success. A rubric was also developed to assess achievement of the Strategic Plan. The Strategic Plan was monitored and achievement of goals

evaluated on an annual basis by the Chair of each domain, and adjustments made if goals were met or timelines required amendment.

The plan underwent a thorough revision at a retreat held in June 2016; faculty and staff assessed achievement against the rubrics and reviewed the mission, vision and each of the goals; the mission and vision remained unchanged, but goals and tactics were revised to reflect achievement of goals and changes in the program or the organization (see box below). New Chairs were allocated to each workgroup and a new Director was appointed to oversee and monitor the revised Strategic Plan (see *Appendix 3*).

Strategic Plan 2016 update: six themes

1. Innovative leader in EDUCATION
2. Enhanced faculty reputation in RESEARCH & SCHOLARSHIP
3. Deliver innovative PHARMACY PRACTICE
4. Create high standard of COMMUNITY ENGAGEMENT
5. Create POSITIVE WORKPLACE
6. Achieve PROGRAM EXCELLENCE

2. Evidence about Program Quality

Students: profile, demographics and GPA of matriculating students

The profile of our students, by graduation class, is shown below in table 1. Over the five years shown, in general, the matriculated number of females has been higher than males. For example, for the Class of 2021, 64.7% were female, while 35.3% were male students, and 66.4% were Asian/Pacific Islander. The proportion of women mirrors national trends, and while the proportion of Asian students is relatively high, it nevertheless reflects the patterns and trends seen in pharmacy colleges in California and the growing trends in the pharmacy profession as a whole. As is shown in the table below, although most of the students were California residents, we also had students from out-of-state and four international students in the Class of 2021 (0.03%).

Table 1: Demographics of entering students, Class of 2017, 2018, 2019, 2020, and 2021.

New Matriculate Demographic Admissions Report: Fall 2017 (Class of 2021)

Entering Year	2013	2014	2015	2016	2017
Class of	**2017**	**2018**	**2019**	**2020**	**2021**
# of Applications	1385	1361	1112	1116	1081
# Interviewed	382	420	368	533	524
# Offers	292	349	313	510	509
% of interviews to applicants	28%	31%	33.0%	48.0%	48.5%
% of offers to interviewed	76%	52%	85.0%	96.0%	97.1%
Class Size*	114	121	67	122**	134**

*Does not include transfer students or 5-year plan students

** Includes 1 matriculated student who withdrew during first week of program

Data for Matriculated Students

GPA	2013	2014	2015	2016	2017
Cumulative	3.11	3.16	3.19	3.04	3.06
Science	2.91	2.98	2.95	2.83	2.84
Math	3.11	3.16	3.08	3.00	2.95

Ethnicity	2013	2014	2015	2016	2017
Black (non-hispanic)	4	1	1	4	5

Hispanic	4	2	3	3	4
Asian/Pacific Islander	82	87	49	94	89
Native American/Alaskan	1	0	1	1	0
White (non-hispanic)	23	24	13	24	21
Unknown/other	0	7	0	0	7
2 or more races	---	---	---	---	8

Colleges/University Attended for Four-Year Degree	**2013**	**2014**	**2015**	**2016**	**2017***
University of California	47.2%	31%	59%	55%	43.2%
California State University	26.4%	57%	31%	30%	33.6%
Other/Private/In or Out of State	26.4%	12%	10%	15%	20.9%

***3 matriculated students in the Class of 2021 have not received a Bachelor's Degree**

Class of 2021 Demographic Information	
Average Age	24.8 (min: 20; max: 47)
Gender	64.7% female; 35.3% male
Degree Status	No Degree: 3 (2.2%)
	Bachelors: 127 (94.8%)
	Masters: 4 (3.0%)
State of Residence	California: 116
	Florida: 1
	Georgia: 1
	Indiana: 1
	Maryland: 1
	Michigan: 1
	Minnesota: 1
	Nevada: 1
	New Jersey: 1
	New York: 2
	Ohio: 1
	Texas: 1
	Virginia: 1
	Washington: 1
	International: 4

Primary College/University Attended – Class of 2021 Matriculates

University of California System	California State University System	Other/Private/ Out-of-State/Foreign
Davis: 36 Irvine: 5 Los Angeles: 1 Merced: 1 Riverside: 5 San Diego: 6 Santa Barbara: 1 Santa Cruz: 3 _____ Total: 58	Cal Polytechnic: 1 Chico: 2 East Bay: 2 Fresno: 1 Fullerton: 1 Long Beach: 3 Monterey Bay: 1 Northridge: 2 Sacramento: 15 San Francisco State: 2 San Jose State:9 Stanislaus: 4 _____ Total: 43	Azusa Pacific University: 1 Ball State University: 1 Eastern Washington University: 1 Georgia State University: 1 Massachusetts College of Pharmacy & Health Science: 1 Notre Dame De Namur University: 1 Oakland University: 1 Pacific Union College: 1 Pacific University: 1 Rutgers University: 1 SUNY- Oswego: 1 SUNY- Stony Brook: 1 Southwestern Oklahoma State University: 1 University of Central Florida: 1 University of Maryland- College Park: 1 University of Minnesota- Twin Cities: 1 University of San Diego: 1 University of San Francisco: 1 University of Texas- El Paso: 1 University of the Pacific: 2 University of Toledo: 1 University of Washington: 1 Walla Walla University: 1 Foreign University: 6 _____ Total: 30

Although admission GPAs have fluctuated, the overall entry-level GPA for classes over the past 5 years has remained above 3.0. Science and Math GPAs show a different distribution. A variety of factors have collectively contributed to this GPA profile. For example, compared to some of the other parts in the country, California has 14 pharmacy schools which make it a competitive admissions landscape. The COVID-19 pandemic waylaid plans for many families to achieve higher education. The pandemic also resulted in a global disruption of undergraduate education that changed the undergraduate college course schedules for some of the prerequisite courses. Despite these challenges, CNUCOP has been able to maintain an overall average GPA of 3.0. Though the College is concerned about lower Science and Math GPAs.

The College closely monitors admission GPAs and has analyzed these data in conjunction with data on students' performance and achievements once in the program. Please see section 3c (i) for this analysis.

a) The Curriculum and Learning Environment

PEEDAGOGY: TEAM-BASED LEARNING AND OTHER ACTIVE LEARNING STRATEGIES

The Structure of TBL at CNUCOP. CNUCOP was the first health professional school in the U.S. to use exclusively a Team-Based Learning (TBL) pedagogical method to deliver the entire didactic curriculum. TBL is a well- defined educational strategy that promotes judgment, mastery of content, communication, teamwork, problem-solving, and critical thinking. TBL emphasizes the importance of individual accountability, group collaboration, and the application of course concepts to complete team assignments. The role of the instructor is to clearly articulate the learning outcomes, create challenging problems for students to solve, and probe their reasoning in reaching conclusions. At the beginning of each semester, teams are formed by the Office of Academic Affairs (OAA) comprised of five or six students in each class based on selection criteria, (e.g., gender, ethnic group, GPA), that help achieve heterogeneity across teams. Students remain with the same team for all courses for one semester. All students are held accountable for their individual and group work, which accounts for 70% and 30% respectively of course grades. Student peer evaluations are performed once or twice a semester and count toward the final grade (part of the team mark).

TBL and Student Admissions. The TBL pedagogy is highlighted in candidate recruitment materials and a sample TBL session is conducted on the campus with all candidates who are interviewed for the program; this helps to ensure all candidates are aware of the main pedagogy utilized in the College and are informed about the techniques used in TBL before they accept an offer of a place; we believe this helps them decide whether the format is suitable for their learning style; surveys of students we have interviewed and feedback from faculty involved in the admissions interviews indicate that the College's use of TBL is one of the reasons applicants choose our program.

TBL and Pre-matriculated Students-CNUCOP's Pharmacy Primer Program. Since academic year 2018-2019, CNUCOP created a special, voluntary, tuition-free, two-week-long program for incoming and enrolled first-year students called the Pharmacy Primer Program. The overall intent is to adequately prepare students for the rigors of pharmacy school. The Primer instructs matriculated students in various areas of the foundational sciences such as Biochemistry, Physiology, Calculations, Introductory Pharmacology, and Organic Chemistry, and helps students connect the dots with how these prerequisite sciences are linked to various topics in pharmacy education. The Primer also provides a safe-environment practice setting for the students to learn TBL. Student perception and responses for the Primer Program over the last five years were overwhelmingly positive, with response rates of about 95 +/- 2%, and overall positive responses of more than 90% for 20 perception items on a Likert scale. Keeping this in mind, CNUCOP continued to offer this pre-matriculation program in the virtual setting during the three years of the COVID-19 pandemic. The Primer was expanded from just including foundational sciences to also including resources for stress and time management, emotional health and wellbeing, and resiliency, and professional identity formation.

TBL Training and Resources for Faculty. In addition to training our students in the TBL pedagogy, training in TBL is also provided to new faculty as part of their onboarding and orientation to the

College; all faculty are encouraged to enhance their TBL skills by availing themselves of ongoing training, and mentoring is provided by more experienced faculty. Several Faculty are certified TBL practitioners, who provide continuous support and training on TBL pedagogy throughout the year. Several faculty also have presented or provided training on TBL at national conferences, and have undertaken scholarship and research activities directly related to the delivery and practice of TBL.

TBL Expertise at CNUCOP. Recently, CNUCOP faculty successfully applied for research funding for TBL-based scholarship of teaching and learning projects. For example, in academic year 2021-2022, Drs. Jennifer Courtney, Erika Titus-Lay, Eugene Kreys, and Ruth Vinall, from all the three departments at the College, collaborated on a project entitled "Comparison of Virtual Versus In-Person Delivery of a Naloxone Certification Training Program Through the Use of Team-Based Learning" which was funded by the Team Based Learning Collaborative (Huntington, West Virginia, USA).

Moreover, faculty at CNUCOP are encouraged to receive and maintain appropriate training in active learning pedagogies. Faculty development funds (explained in detailed under the section of research) are available for faculty to use to cover the costs of these training. Dr. Ruth Vinall and Dr. Suzanne Clark, both associate professors in the Pharmaceutical and Biomedical Sciences Department are certified experts by the Team Based Learning Collaborative. Similarly, Dr. Ashim Malhotra and Dr. Ruth Vinall, associate professors of the PBS department completed the Quality Matters training certifications for teaching best practices in the online and remote environments.

Active Learning Strategies-2: High Fidelity Simulation. In addition to Team Based Learning, the College also employs other active learning strategies as appropriate for the content. For example, as stated above, CNUCOP developed a detailed Integrated Cardiovascular Simulation program that employed high-fidelity manikins to teach students to apply their didactic physiology, pathophysiology, and pharmacology learning for the management of arrhythmia and congestive heart failure. This active learning module was developed in academic year 2019-2020 as a part of the continuous quality improvement of the program. The simulation activity was placed in the second professional year (P2 year) of the PharmD program and all P2 students took part in the day-long simulation. In addition to bolstering student confidence, recall, and retention, the activity promoted critical thinking, and also encouraged the students to provide empathetic, culturally sensitive patient care in a linguistically accessible manner. It is noteworthy that the faculty who developed this program, Drs. Song Oh, assistant professor in the Clinical and Administrative Sciences and Dr. Ashim Malhotra, were invited to share this program at the 2020 annual national meeting of the American Association of Colleges of Pharmacy as a competitive podium presentation.

Active Learning Strategies-3: Community Pharmacy Simulation and the APPS Lab. CNUCOP has also carefully and intentionally developed a series of practice laboratory simulations for pharmacy students to teach them effective work in the community pharmacy setting. For example, in academic year 2019-2020, Dr. Peter Tenerelli, assistant professor in the Clinical and Administrative Sciences and Dr. Ashim Malhotra created a simulation activity for second year pharmacy students to help them understand the theoretical background of medication errors

and to learn preventative and corrective strategies to mitigate the harm that can result from medication errors in the community pharmacy setting. This mandatory active learning module was operationalized using the CNU Advanced Pharmacy Practice Simulation laboratory that is equipped with 11 computer stations, each with a functional Pioneer Rx software program that is used in contemporary community pharmacies across California. Students learned to identify medication errors, the common causes of medication errors, and how to fill out and file appropriate forms in the community pharmacy. The activity was positively received by the students.

Active Learning Strategies-4: Community Pharmacy Simulation and Professional Identity Formation. To train pharmacy students to better understand their professional roles and responsibilities, CNUCOP utilizes our state-of-the-art community pharmacy simulation facility, developed over the period of this current program review. A recent project in this area was lead by Dr. Jennifer Courtney, assistant professor in the Clinical and Administrative Sciences Department and co-taught by her and Dr. Shahanara Ahsan, also an assistant professor in the same department. This active learning module intended for first year pharmacy students included multiple activity days distributed throughout the semester. This project received the competitive 2022 American Association of College of Pharmacy New Investigator Award funding for Dr. Courtney, with Dr. Malhotra serving as a faculty mentor and collaborator.

Active Learning Strategies-5: Objective Structured Clinical Examinations (OSCEs). CNUCOP also instituted OSCEs as active learning and assessment strategies. We carefully and intentionally placed the OSCEs assessment at the end of the third professional year, which marks a culmination of the in-school training of PharmD students. Following this, students learn through off-site clinical rotations in their final fourth year. The OSCEs were introduced in academic year 2020-2021, with the project being led by Dr. Jared Cavanaugh, assistant professor in the Clinical and Administrative Sciences Department. OSCEs offer students the opportunity to self-assess their developing abilities to address patient care in a holistic fashion and includes components of practice such as calculations, patient counselling, and medical reconcialtion. The advantage that OSCEs offer is realistic problem solving, closer to the nature of the complexity of real-life patient case scenarios. Remediation opportunities have also been carefully structured for those students who do not pass OSCEs at the first attempt. The OSCE structure and the remediation structure were discussed in detail at the CNUCOP Committee. Evaluation of effectiveness is ongoing through the collection of student performance data and future correlational analysis with student readiness for fourth year Advanced Pharmacy Practice Experience (APPE) rotations.

Assessment. Measures of teaching effectiveness, e.g., students' course evaluations, peer feedback, review and discussions with department Chairs, are all regularly undertaken and used to improve process and/or content of TBL. The evaluation form used to record feedback after observation of teaching by peers was recently revised in order to insure faculty received focused and specific feedback on TBL pedagogy. This feedback is then utilized in action plans when the course is next delivered. Thus quality and teaching effectiveness is assured as far as possible, and the assessment and feedback loop closed.

The previous program review commended the College and faculty for their commitment to TBL pedagogy; furthermore throughout various stages of the professional accreditation process, the College's use of TBL has received positive support and commendations from ACPE site visitors who provide regular external review of the program.

i. The Didactic Curriculum

Overview and Alignment with Professional Accreditation Standards. The College's program must prepare graduates with the professional competencies to enter pharmacy practice in any setting to ensure optimal medication therapy outcomes and patient safety; the program must satisfy the educational requirements for licensure as a pharmacist, and prepare students to meet the requirements for conferral of the degree. To clarify, per our professional accreditation guidelines, we prepare "generalist" pharmacists who are practice-ready to provide optimal patient care. Per the Educational Outcomes outlined in ACPE's 2016 Accreditation Standards,[3] the curriculum must develop foundational knowledge, and the knowledge, skills, abilities, behaviors and attitudes necessary to provide patient-centered care, manage medication use systems, promote health and wellness, and describe the influence of population-based care on patient-centered care. The curriculum must also develop in students' the right approach to patient care and practice, and it must develop their skills and ability for personal and professional development. These broad educational outcomes, along with demonstrating interprofessional competence, were adopted by the College in 2015 as its Program Learning Outcomes.

Curricular Design. The College's faculty must be responsible for the design and delivery of the curriculum and they must monitor it to ensure breadth and depth of requisite knowledge and skills, the maturation of professional attitudes and behaviors, and the opportunity to explore professional areas of interest.[3] The curriculum must define the expected learning outcomes and be developed with attention to sequencing and integration of content and the selection of teaching and learning methods and assessments. All curricular pathways must have both required and elective courses, and practice experiences, and must effectively facilitate student development and achievement of the professional competencies.

The curriculum for the professional portion of the degree program must be a minimum of four academic years; it must include didactic course work to provide the desired scientific foundation, and include electives (6 to 15 hours). Typically, foundational science courses are included in the first two years of the program and practice science and clinical courses increase incrementally starting the second professional year. CNUCOP follows a sequential curricular design but intentionally and deliberately uses several mechanisms for the horizontal and vertical alignment and integration of course content. For the practice experiences a minimum of 300 hours of introductory pharmacy practice experiences is required, and four 6-week long advanced pharmacy practice experiences in 'required' settings, and two elective rotations are required in the final year.

The College has a Curriculum Committee responsible for design, delivery and oversight. It meets twice every month, and starting in October 2015 once a year a joint meeting is held with the

Assessment Committee as part of the curricular quality assurance process.

Since the last program review the PharmD curriculum has undergone revision, based on ongoing periodic review and assessment processes. For example, changes occurred soon after the last program review in 2011 after faculty determined that it would be beneficial to integrate pharmacology with pathophysiology rather than presenting pharmacology with pharmacotherapy. This change required realignment of the topics presented in courses in order to prepare the students for the integration of pathophysiology and pharmacology, followed by pharmacotherapy; thus, pathophysiology and pharmacology topics are presented the semester prior to the presentation of the same topics in pharmacotherapy. This realignment required a transition curriculum for the classes of 2012 and 2013, to ensure that students received all curricular topics prior to the institution of the new curriculum for the class of 2014.

ACPE PharmD Accreditation Standards 2016: Background and Preparation.

Major curricular changes were made more recently as a result of annual curricular reviews and to ensure compliance with new educational outcomes and with ACPE Standards 2016. In 2014 faculty started to discuss what changes would be needed to ensure compliance with the new 2016 Standards, and to address changes in the practice of pharmacy. Thus, a new curriculum - "Curriculum 3.0" - was implemented in fall 2016 (see *Appendices 4a and 4b* for details of the Academic Program as it was in 2015-16, and for the new Program, known as Curriculum 3.0), with modifications made which also accommodated feedback from students, faculty and preceptors, addressed assessment of students' learning, and addressed new rules and regulations in healthcare. A brief description of these recent curricular changes are given below:

- Longitudinal Laboratory Practicums (PRC): A series of activities and integrated skills were identified. Some of these components and skills such as OSCE and Simulation were removed from didactic courses, to allow progressive development through the longitudinal practice. A practicum was added to each semester of the didactic curriculum to enhance students' preparedness for practice and provide a link between didactic knowledge and practical applications. All the practicums are designed to assess individual, rather than team competency, addressing preceptor feedback that TBL pedagogy in the didactic curriculum was not providing sufficient opportunities for our students to develop key individual skills.
- To provide hands-on experience pharmaceutical compounding and use of sterile IV hood has been added to the core curriculum.
- Interprofessional Education (IPE): The COP has been engaged in IPE since 2013, when the College began collaboration with the College of Nursing at California State University in Sacramento (CSU). With the opening of the College of Medicine (COM), COP has begun to implement IPE events with the two colleges. Dr. Jennifer West was named the director of IPE who plans and implements IPE events for both COM and COP programs. CNUCOP continues its collaboration with the Colleges of Nursing at CSU Sacramento. CNUCOP has majorly expanded its interprofessional education program by making structural and organizational changes as explained in detail below under the "interprofessional education" section.
- Other changes include integration of professionalism training and assessment in each semester, resequencing sections of Drug Information, Law & Ethics and Self-Care courses, increasing the credit hours for the Pathophysiology and Pharmacology III course to include fundamental concepts in cancer pharmacology, reducing credit hours for the therapeutics courses, and implementation of clinical pharmacokinetics and calculations into each practicum for the purpose

of continuous practice.

The core didactic curriculum has been mapped against the didactic requirements recommended by ACPE, and the program and institutional learning outcomes, with mapping exercises regularly undertaken to ensure that the program offers sufficient breadth and depth of learning expected of PharmD candidates.

Examples of Curricular Enhancement Since 2017. The College invested considerable time and resources to further enhance several aspects of our curriculum, as outlined below. Briefly, the College has been responsive to the evolution of our professional accreditation, which articulated new Standards in 2016. In addition, through continuous quality improvement and implementation of a data-driven, self-assessment process, the College has developed a progressive Strategic Plan to further guide curricular and co-curricular enhancement and to ensure the allocation of appropriate resources for the same. Some of the major changes made in the past 3 years since the change in leadership include: 1) restructuring the practicum courses offered in the P2 and P3 years to include skills-based learning such as high quality journal clubs, SOAP-noting, and embedding interprofessional learning; 2) incorporating longitudinal and integrated calculations, including a calculations certificate program where students need to demonstrate competency with pharmacy calculations; 3) re-structuring and re-aligning the sequence of courses within the curriculum to ensure adequate and logical presentation of content; 4) developing, integrating, and assessing clinical and community simulation programs to enhance students' self-confidence; 5) instituting and gradually increasing the pass percentage for end-of-year comprehensive examinations called milestone exams (explained later in this report); and 6) restructuring the preparation for the national pharmacy licensure examination called the NAPLEX.

Bolstering the CNUCOP Curriculum Committee. Additionally, since 2018 the following changes were made to enhance the work of the Curriculum Committee. Terms for the Committee leadership, including the Chair and Vice-Chair were extended from one year to three years to allow for continuity and efficiency. Department Chairs, the Assistant Dean of Accreditation, and Associate Dean of Academic Affairs were added to the Committee as ex officio members to allow for knowledge management and adequate capture and dissemination of the Committee's work. A number of policy and process changes were either instituted anew or bolstered, e.g., forms were created to collect information regarding substantial changes to individual syllabi and all syllabi were carefully mapped to Course Learning Outcomes and NAPLEX examination competencies. Syllabi templates were standardized.

Student representation was also enhanced with P1-P3 students now serving as Committee members with a vote. This was done to increase engagement for our students and to help them take ownership of their learning. Student representatives were required to relay Committee deliberations back to their cohorts, thus serving as efficient conduits connecting the Curriculum Committee with the student body. The Curriculum Committee also adopted and later institutionalized the practice of instituting annual student focus groups to drill down upon the detailed aspects of students' perception of the ongoing changes in the curriculum.

In addition to regular meetings of the Curriculum Committee, major changes to the Curriculum faculty reviewed their course content against the new ACPE standards and re-mapped content so that we could ensure all relevant subjects and topics were being covered at the right level (see *Appendix 5* for latest Curriculum Map); the map was reviewed by the Curriculum Committee and the Office of Academic Affairs, and revisions to course content have been made to address any subject gaps; the map is updated every semester following any changes made by faculty to their course. The map, along with discussions with student representatives on the Curriculum Committee, has also been used to identify topics for electives, thus aligning faculty expertise with student interest in topics that are not considered core to the curriculum.

Vertical and Horizontal Alignment and Integration. The ultimate goal of the PharmD curriculum is to produce practice-ready generalist pharmacists who provide optimal patient care, reduce/eliminate medication errors, and effectively utilize culturally competent and diversity-sensitive practice. To enable students to connect the dots between the foundational and practice sciences, the curriculum is intentionally and with careful deliberation, vertically and horizontally aligned and integrated using several mechanisms. For example, overall vertical integration is achieved using the so-called H-shaped integration model, where foundational sciences are introduced in the first year of the program. This is followed by IPPE rotations in the community and hospital/institutional setting starting in the summer of the second year, which is designed to reinforce the practice and clinical applications of the didactic learning. These continue along with didactic classes till the end of the third year, following which students work in a variety of practice settings during their APPE rotations. Additionally, each student in the PharmD program also completes a structured co-curriculum which increases in complexity over time. The co-curriculum, detailed below, not only complements the curriculum but specifically reinforces integration and holistic application of learned content by providing different practice opportunities. Moreover, the clinical and community simulations which were added during the 2019-2020 academic year, and the enhancement of the interprofessional education program also provide continuous application and integration opportunities for the studentrs. Finally, milestone examinations are another tool in our toolkit to incentivize students to study all the content learned in the previous academic year and to engage in self-assessment to figure out areas of growth opportunities.

Elective Courses. COP students are required to take a minimum of two 2-credit electives, one in Spring of the P2 year and one in Fall of the P3 year. A list of electives offered last year is given in *Appendix 6*. Minimum and maximum numbers are set for each elective by the faculty, with students given a deadline prior to the start of each semester to register for the course of their choice. To provide flexibility an 'Independent Study' elective option is also available and students who want to work directly with a faculty, often to obtain exposure to a specialized research project, choose this over one of the didactic electives.

COVID-19 Pandemic and Remote Teaching. The CNUCOP Curriculum Committee was particularly adaptive, pro-active and supportive during the COVID-19 pandemic which disrupted education globally. The Committee created best practice models for the adoption of remote teaching technologies such as step-wise guides for using Microsoft Teams for both the faculty and the student body. This was perceived as a very useful strategy in assessments conducted by the

administration securing faculty and student feedback.

We believe that the curriculum and co-curriculum are effective, as evidenced from student achievements detailed throughout the report, including graduation rates, learning outcomes, grade reports, pass rates in major external assessments, and employment success after graduation. The number of student accomplishments and awards, including national student organization chapters of the year, students' acquisition of competitive extramural dollars, scholarly collaboration by students, their leadership in public health, and their success in consecutive statewide quiz bowl competitions, are also testament of an effective curriculum.

ii. Curricular quality assurance

In addition to feedback obtained from the last full program review, and regular periodic performance reviews undertaken on a semester or annual basis, the annual curricular review process includes external review by preceptors, and direct feedback from faculty and students, received either through formal surveys, through committees, or through retreats.

Other quality assurance initiatives include workshops delivered each semester by the OAA and the Curriculum Chair to guide faculty on preparing and reviewing a syllabus; the workshop covers a range of topics including how to map course content against ACPE didactic requirements, guidance on mapping course content against program and institutional outcomes; scheduling, reading, course policies, and so on. Attending the workshop is mandatory for all Course Coordinators and optional for other faculty.

The Curriculum Committee designed a syllabus template in order to standardize the content and format of each course syllabus which was revised recently to ensure compliance with updated Standards and learning outcomes (e.g., new PLOs). The revised template and review processes and timelines were shared with the faculty for their inputs and final approval (see *Appendix 7* for syllabus template).

To optimize the course and the content delivery, course coordinators are required to review feedback from the students given in their course evaluations (see section 2d (ii)) and the Course Learning Outcomes assessment. After reviewing these documents, the course coordinator is required to create a plan of action addressing the content, assessment and/or delivery of the course. The plan of action and the course syllabus is then reviewed with the relevant department Chair. According to guidelines of the Curriculum Committee, course syllabi for a course taught by the same faculty previously and without any substantive changes are reviewed by the department chair only, with the option to be reviewed by the Full Committee at the discretion of the department chair. New courses or existing courses with substantive changes (including but not limited to changes in course coordinator, content, assessment) are reviewed by the department chair, an assigned reviewer from the Curriculum Committee, with the option to be reviewed by the Full Committee per reviewer's recommendation. To ensure adequate time is provided, the Curriculum Committee shares the time line for syllabus review several months prior

to the start of each semester. Finalized syllabi are posted on the Curriculum Committee's folder accessible to all faculty and used by the Office of Academic Affairs to develop the calendar of "important dates" to prevent double scheduling of major summative assessments. This calendar is shared with faculty and students. The syllabi are also uploaded into CANVAS and made available to the students at least two weeks prior to the start of teaching.

INTERPROFESSIONAL EDUCATION AS A PART OF CNUCOP'S CURRICULUM

Interprofessional Education (IPE)

A. Evolving Accreditation Standards as Drivers of Change.

IPE was included as Standard 11 in the Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree (ACPE 2016 Standards). The ACPE 2016 Standard 11 was divided further into the three subdomains of interprofessional team dynamics (11.1), education (11.2) and practice (11.3). Similarly, the Liaison Committee on Medical Education included IPE as Standard 7.9 in the 2018 Standards for Accreditation of Medical Education Programs Leading to the MD Degree (LCME 2018 Standards). The Accreditation Commission for Education in Nursing (ACEN) included IPE as different standards for nursing programs leading to Associate, Diploma, Bachelors or Clinical Doctorate degrees. For the baccalaureate program in nursing, ACEN included IPE as Standard 4.6 of the 2017 Standards and Criteria. In dentistry, the Commission on Dental Accreditation (CODA) has two predoctoral accreditation standards, Standards 1-9 and 2-19 that relate to IPE. Thus, the inclusion of IPE in accreditation standards for various healthcare education fields and professional degree-granting programs underline the importance placed on IPE and its inclusion in the healthcare education curriculum.

B. Formation of the Interprofessional Education Collaborative and Health Professions Accreditors Collaborative.

The Interprofessional Education Collaborative (IPEC) was formed in 2009 by six national education associations of healthcare professions and issued a document outlining Core Competencies for Interprofessional Collaborative Practice in 2011, revised in 2016 (IPEC guidelines). IPE competency areas identified by the IPEC guidelines include Values and Ethics (Competency 1), Roles and Responsibilities (Competency 2), Interprofessional Communication (Competency 3), and Teams and Teamwork (Competency 4). Each competency area was further subdivided into 8-11 subdomains, providing specific guidance for the competency and expected Learning Outcomes.

In February of 2019, to provide guidance to programs in designing their curricula and to address complex issues of definitions and lack of clarity, the Health Professions Accreditors Collaborative was formed. This guidance document strived to summarize the curricular objectives of IPE from the perspective of different healthcare professions and produced consensus statements for the adoption and development of curricula for IPE across various agencies.

1. OVERVIEW OF IPE AT CALIFORNIA NORTHSTATE UNIVERISTY – THE "CNU CIM-IPE CURRICULUM".

To develop and implement an IPE curriculum addressing these standards, we created a comprehensive, integrated, multi-modal IPE program (CIM-IPE) that was vertically and horizontally aligned across the curriculum of the participating colleges of the California Northstate University (CNU) including the colleges of pharmacy (CNUCOP), medicine (CNUCOM), and health sciences (CNUCHS), and our partner institutions,

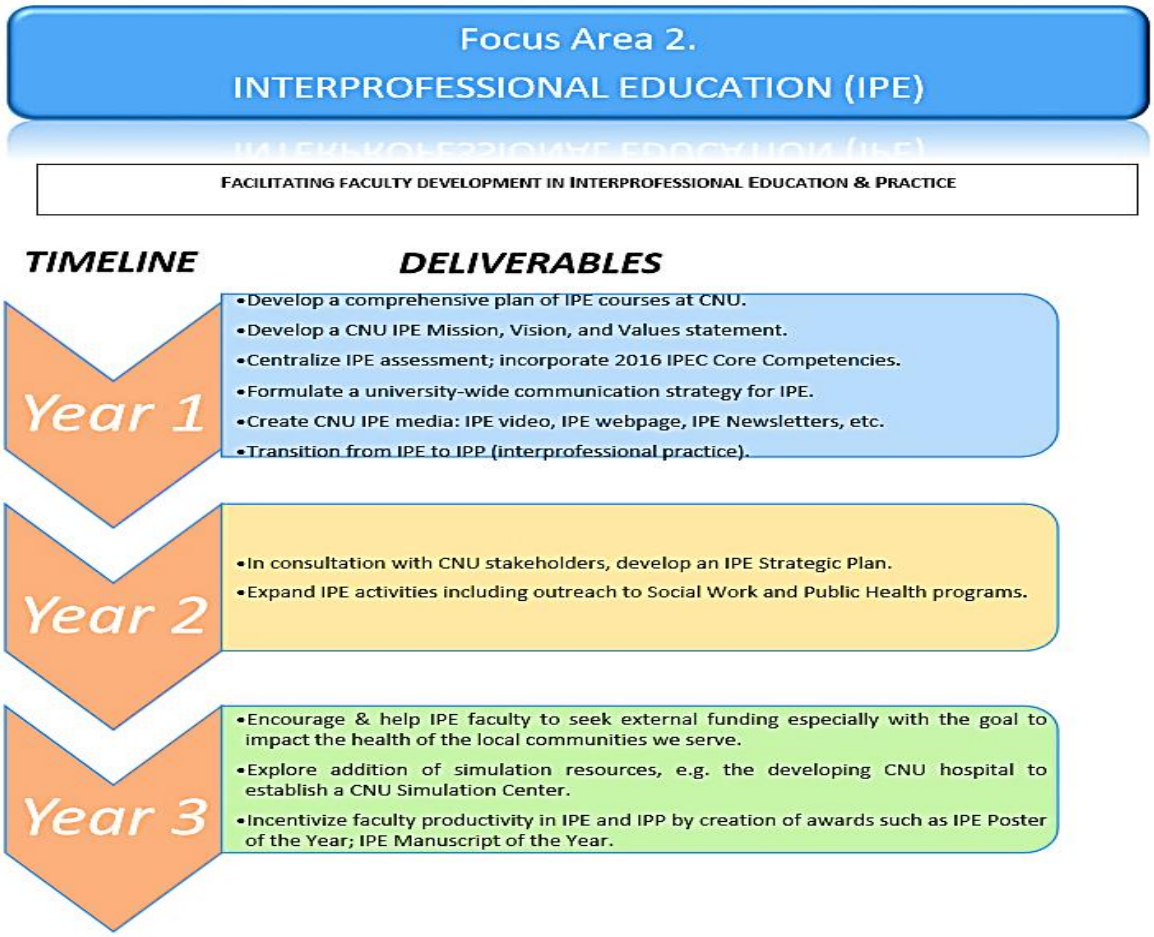
the California State University at Sacramento (CSUS) School of Nursing (CSUS-SON) and the Samuel Merritt University School of Nursing (SAM-SON). We also developed an integrated assessment blueprint for CIM-IPE, to satisfy the accreditation requirements for all participating professional programs.

The CNU CIM-IPE is a flexible and evolving curriculum that has seen multiple phases of growth over the years. As CNU invested in program growth, the organizational and curricular structure for the CNU CIM-IPE has permitted expansion and inclusivity by the addition and adaptation of the ongoing IPE curriculum. For example, in AY 2019-2020, our faculty developed and added new IPE events, expanded to include students enrolled in the CNU College of Psychology. These emerged organically in a collegial discussion of content-based cases, for example in this case, in the "Transitions of Care" for the management of stroke patients – an IPE event that included the CNUCOM, CNUCOP, and CNU Psychology students.

Before we outline the details of the CIM-IPE curriculum, the process and results of our assessment approach for CIM-IPE to encourage transferability to other pharmacy and healthcare education programs will be discussed.

A. Structure and organization of IPE at CNU – Creating an Institutional Framework for CIM-IPE.

Within CNU, an extensive infrastructure was designed to support the development, implementation, and logistics of a university-wide CIM- IPE plan. 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 CNUCOP and CNUCOM students, faculty, and administrators and CNUCHS faculty. Additionally, nursing faculty from CSUS-SON were available for consultation. In AY 2019-2020, plans to include the newer CNU programs such as the CNU College of Psychology in this



organizational structure are currently underway. As the CNU College of Dental Medicine begins to matriculate students, the CNU IPE Committee membership will be further expanded.

With the planned addition of the College of Dental Medicine similar organically developed CIM-IPE additions specific to Dental Medicine are under discussion and development for implementation pending accreditation of the College of Dental Medicine.

The CNUCOM and CNUCOP IPE programs were operationalized and managed within the respective colleges by a faculty coordinator. The IPE Coordinator interfaced with faculty, students, staff, college committees, program directors, and department chairs internally, continually assessing and evaluating CIM-IPE and sharing assessment data with all stakeholders through timely reports. The following process was developed to operationalize this. Within the CNUCOP, the IPE Coordinator reported directly to the Office of the Dean and interfaced with internal (the four CNU colleges) and external (CSUS-SON and SM-SON) partners.

The assessment process was institutionalized with the sharing of data programmatically (Assessment and Curriculum Committees) and institutionally (the Office of Institutional Effectiveness). Student feedback was discussed in planning logistics, defining learning outcomes, and developing learning support services.

CNU IPE Committee and CNU ITLE. The CNU-IPE Committee developed the University IPE Mission, Vision, and Values at CNU, providing overall direction for curricular planning. This ensured the alignment of CIM-IPE curricular goals, objectives, and learning outcomes with the accreditation criteria for each participating profession. In AY 2018-2019, recognizing the collaborative nature of IPE, CNUCOP and CNUCOM faculty chairs of IPE were appointed as the Co-Chairs of the CNU IPE Committee which broadened committee oversight. In a final step to centralize IPE operationalization, the University established the Institute of Teaching and Learning Excellence (CNU ITLE), appointing the CNUCOP IPE Coordinator as its Founding Director. IPE is one of the five Focus Areas in which the CNU ITLE has commenced providing support services to the CNU community. CNU ITLE operates under the aegis of the Office of the CNU Vice President of Academic Affairs and is comprised of faculty nominated by the college Deans, who served on its Advisory Board.

B. <u>CNU CIM-IPE Mission, Vision, and Values.</u>

The ***mission*** of Interprofessional Education (IPE) at the California Northstate University is to prepare students to be practice-ready by seamlessly integrating with interprofessional healthcare teams for the provision of patient-centered care. Our ***vision*** is to educate students in the appropriate choice of pharmacotherapy thereby improving patient outcomes by engaging interdisciplinary expertise and working as an integrated member of the healthcare team.

Start: AY 2019

C. <u>Developing and Implementing the CNU CIM-IPE Curriculum.</u>

Literature Review of IPE. In designing the CNU CIM-IPE curriculum, we reviewed the available literature regarding pedagogical models for IPE, eventually deciding to construct a novel diversity-enhanced IPE platform that simultaneously employed multiple IPE models. The selection of each IPE model was determined by identifying the intended learning outcomes. The intent was to create a comprehensive, vertically and horizontally aligned curricular plan that afforded continuity and expansion of skills within each of the participating healthcare education programs in such a way as to not only develop students but also address the evolving accreditation criteria addressed above. For example, within the CNUCOP curriculum, the CIM-IPE extends from the First Professional Year (P1) to Third Professional Year (P3) of the Doctor of Pharmacy (Pharm.D.) program.

Integrated IPE Curriculum and Teaching Modalities of CIM IPE. The CIM-IPE curriculum was vertically and horizontally integrated by ensuring alignment with the foundational sciences and clinical skills and pharmacotherapy components. CIM-IPE comprised of an integrated system of 5 IPE-training modalities: 1) didactic introduction to IPE (**dIPE**), 2) high-fidelity simulation-based IPE cases with manikins, emphasizing learning interprofessional team-dynamics and communication and organ disease state management (**SimLab**), 3) high-fidelity simulation-based IPE cases with manikins, emphasizing patient-centered care in a hospital setting (**SimHos**), 4) non-simulation IPE Case Conferences employing Problem-based Learning (**ICC**), and 5) a six-month-long advanced IPE elective course using "Hotspotting" (IPE **Hotspotting-ELC**). SimLab occurrences were shared between facilities at CNU and CSUS-SON.

Interestingly, Hotspotting-ELC was offered in a hybrid format where students from professions such as pharmacy, psychology, nursing, and social work collaborated on real patient cases in an online platform followed by home visits. The goal of Hotspotting-ELC was to learn to provide sustainable care in a complex care environment with factors such as drug addiction, homelessness, and poverty complicating healthcare

delivery.

Matching IPE Teaching Modality to Curricular Needs. Selection of the type of IPE training model employed depended upon 1) the participating professions, 2) numbers of students, 3) faculty availability, 4) faculty workload, 5) curricular time-availability, and 6) the type of learning outcome desired. An element of increasing complexity was inbuilt into CIM-IPE, for instance, with each successive pharmacy year honing different modalities of learners' skills. Further, as the complexity of the content, case numbers, and the diversity of the IPE cases increased, care was taken to align these cases with the parallel didactic or skills curriculum being taught. To achieve this for the Doctor of Pharmacy program, we purposefully integrated the IPE experiences into our practicum course sequences (PRCs), which commence from the P2 year and continue into the P3 year, in the form of required and graded components of the practicum in the P2 and P3 years of the program. Specifically, SimLab and ICC cases between pharmacy and nursing students commenced in the spring of the P2 year, prior to the Introductory Pharmacy Practice Experiential (IPPE) rotations in Hospital Pharmacy. SimLab and SimHos IPE cases occurred in the fall and spring of the P3 year.

D. Overview of the CNUCOP IPE Curriculum – A Working Model for IPE.

Intro to IPE, P1 Year of the Pharm.D. Program. At the CNUCOP, IPE commences with a required didactic pre-IPPE IPP 607 course which introduces the goals, objectives, and principles of IPE using 2011, and the revised 2016 Interprofessional Educational Collaborative (IPEC) guidelines. Through this experience, students learn interprofessional team dynamics and the roles and responsibilities of different members of the healthcare team. Additionally, P1 Pharm.D. students are instructed in the structure and layout of a hospital room and use of the various devices, patient lines and set-up for patient care in a hospital room using video capture of an Introduction to the Simulation Manikin (Sim Man) by a Nursing faculty from our IPE partner, the Sacramento State University School of Nursing (SON).

In AY 2019-2020, to modernize our teaching approach to IPE, the CNUCOP created a learner-centered active learning exercise that emphasized self-directed exploration and understanding of the IPEC Core Competencies following an initial lecture on IPE. For this activity, following the Intro to IPE lecture delivered by Dr. Malhotra, P1 teams were assigned a virtual patient case presented in a hospital setting from the perspective of the nurse, physician, and pharmacist. Student teams were instructed to utilize the posted 2016 IPE Core Competencies guidelines and identify which IPE Competencies were sufficiently met or were missing from the case. Students reported their team findings as 3-minute video recordings uploaded to the Learning Management System Canvas. Following the completion of this pilot, in the near future, we plan to develop a similar program to introduce IPE to students across all CNU colleges by forming inter-collegiate IPE teams and organizing a large Intro to IPE event for these teams in the first professional year of their individual programs.

IPE Curriculum for the P2 and P3 Years of the Pharm.D. program. In AY 2018-2019, there were three IPE curricular events in two required longitude practicum courses PRC-709 and PRC-710 in the CNUCOP Pharm.D program. PRC-709 offered in the fall offered a didactic review of IPE principals, goals and objectives based on the IPEC guidelines followed by the spring 710 course that includes a Simulation Manikin (Heart Failure) and IPE Case Conference (Medication Error)-based IPE events in collaboration with CSUS-SON. Building and expanding on this vertically integrated IPE exposure, the P3 year offered an augmented IPE curriculum with four IPE events, three in the fall PRC-809 required course and one in the spring PRC-810 required course. These include two Sim Man-based IPE events (Acute Kidney Injury and

End-of-Life Hospice Care for Geriatric Patients) with pharmacy, medical, and nursing students and one Sim-Man based (Acute Pancreatitis) IPE with COP and SON students. Each IPE event and its curriculum is co-developed and led by participating COM, COP and/or SON faculty under the overall guidance of the CNUCOP Chair of IPE and the Director of ITLE at CNU.

Table 1 summarizes the specific IPE events spanning across the five different teaching modalities that were offered in the CNUCOP Pharm.D. program for AY 2018-2019.

In summary, the CNUCOP has a fully-developed and integrated IPE program offering courses in a platform of increasing complexity in the pre-IPPE and pre-APPE contexts as student progress from the P1 to the P3 years. Finally, performance and assessment data are collected in each course and funneled to the CNUCOP IPE Chair who provides input to the Dean and DEC and the Office of Academic Affairs. These data inform the CNUCOP Strategic Plan and the strategic planning process which occurs on a three-year cycle.

Table 1. Blueprint of the CNU CIM-IPE Curriculum Including Description of the Course Name, Type of IPE event, IPE topics, Classroom Hours, and Assessment Strategies from the Perspective of the CNUCOP.

Courses	Type of IPE Event	IPE topics	# of hours for IPE	Assessment Strategies
IPP 607	dIPE	Introduction to IPE, including 2016 IPEC Core Competencies, didactic format	3 classroom hours (N=150), P1	Formative and summative assessment
PRC 709	1. dIPE	1. Review of IPE, goals, objectives, values, and ethics, role and responsibilities, interprofessional curriculum, teams and teamwork.	1. 1 classroom hour (N=120), P2	Formative assessment
	2. dIPE	2. Introduction to the Simulation Lab and SimMan manikin	2. 1 classroom hour (N=120), P2	
PRC 710	1. SimLab	1. High-fidelity simulation case, congestive heart failure, nursing, and pharmacy students	1. 8 classroom hours (N=200), P2, N1	1. Assessment on IPEC Core Competencies
	2. ICC	2. Medication Errors, nursing, and pharmacy students	2. 8 classroom hours (N=200), P2, N1	2. Assessment on content-specific criteria and IPEC Core Competencies
PRC 809	1. SimLab	1. High fidelity simulation case, varies, Acute Kidney Injury (2018), Diabetic Ketoacidosis (2017), medicine, nursing, and pharmacy students	1. 8 classroom hours (N=300), M2, P3, N3	**1.** Assessment for pharmacy students on 2016 IPEC Core Competencies through self-reflection of learning
	2. SimLab	2. High fidelity simulation case, Acute Pancreatitis (2018, 2017, 2016), nursing and pharmacy students	2. 8 classroom hours (N=200), P3, N1	**2.** Assessment for pharmacy students on 2016 IPEC Core Competencies through self-reflection of learning
	3. ICC	3. Interprofessional case conference, Diabetes	3. 8 classroom hours (N=200), P3, N1	**3.** Assessment on content-specific criteria, nursing, and pharmacy students

PRC 810	SimHos	High fidelity simulation case, varies, Hospice-care, Geriatric fall case, medicine, nursing, and pharmacy students, assessment for pharmacy students on 2016 IPEC Core Competencies through self-reflection	8 classroom hours (N=300), M2, P3, N3	Assessment for pharmacy students on 2016 IPEC Core Competencies through self-reflection of learning
ELC 805 A and B	Hotspotting-ELEC	Six-month long course offering Hotspotting in-home visit with patients with complex care needs such as poverty, lack of insurance, drug addiction, recent incarceration, online format and home visits.	Longitudinal, spring and fall semesters, (N=9), P3	Assessment for pharmacy students on 2016 IPEC Core Competencies through self-reflection of learning

dIPE=Didactic IPE; SimLab=High fidelity simulation with content emphasis; ICC Interprofessional Case Conference; SimHos=High fidelity simulation with process emphasis; Hotspotting-ELEC=Complex Care Elective; P1, N1= first professional year pharmacy, and nursing; P2, N2=second professional year pharmacy and nursing; P3, N3=third professional year; M2=second professional year medical students

E. Narrative Description of the CNU CIM-IPE Curriculum from the Perspective of the CNUCOP.

The CNU CIM IPE program spans all four years of the Doctor of Pharmacy curriculum and is vertically and horizontally integrated within the CNUCOP and with our IPE partners. The following describes the CNUCOP IPE curriculum and cites detailed examples of specific IPE events held in the previous AY. Syllabi for the courses mentioned below can be found in the appendices section.

P1 year: In the Introduction to Pharmacy Practice course (IPP 607), a required course for all P1 students in the fall semester, a brief overview of various health care providers and their roles is provided to and discussed with students. Scenario-based team exercises are included to promote discussion and deepen the understanding of what roles pharmacists play in different settings and what the roles of other healthcare professionals are. This component is designed to inform and educate the students about IPE, specifically what is to learn from the IPE experience, and how it can benefit them in their future pharmacy practices. This aligns with Standard 11.1.

P2 year: IPE experiences in the second year of the pharmacy program are presented in the fall and the spring semester through two required courses PRC-709 and PRC-710. PRC-709 provides a didactic review of the goals, principles, and objectives of IPE, including an introduction to the Sim Man and the SBAR technique for working in the hospital healthcare team. PRC-710 offers two IPE events developed collaboratively between CNUCOP and the Sacramento State University School of Nursing (SON). These IPE events align with Standards 11.2 and 11.3 by engaging nursing and pharmacy students in pre-determined teams in an IPE Case Conference on Medication Errors and a hospital patient-centered simulation using the Sim Man and Sim Lab on Heart Failure, which are graded components of the IPE curriculum.

P3 year: IPE experiences in the third year of the pharmacy program include CNU College of Medicine ("COM") students and nursing students from the Sacramento State University School of Nursing. These experiences are presented in a format of increasing patient care complexity, are vertically integrated and offered by engaging diverse instructional platforms including simulation using the Sim Man and a hospital environment (Acute Kidney Failure, Acute Pancreatitis, End-of-Life Hospice Geriatric care) and IPE Case Conference (Diabetes). The Acute Kidney Failure (fall, PRC-809) and End-of-Life Hospice Geriatric care (spring, PRC-810) engage COM, COP and SON students in the IPE; the Acute Pancreatitis

is a simulation SIM Man-based case in the hospital environment for COP and SON students, and the IPE Case Conference is designed for SON and COP students. These required IPE courses include mandatory individual assessments in the form of individual self-reflection, team self-reflection. In AY 2018-2019, formative assessment through ExamSoft and a 20 question student perception survey instrument were added to the assessment dashboard.

In addition to these required IPE courses, a novel, national effort in IPE involving complex care that encourages learning about the provision of sustained care in home visits with socio-economically underprivileged and underserved populations including the homeless is offered as an advanced IPE elective through the fall and spring semesters of the P3 year. In AY 2018-2019, nine P3 students enrolled in this course. Collectively, P3 IPE experiences align with Standards 11.2 and 11.3.

P4 year: IPE experiences are embedded in APPE rotations and student competency is assessed by preceptors. The following APPE syllabi include graded IPE components; APP 901, APP 902, APP 903, APP 904.

The following provides a timeline and detailed description of the IPE events held in the previous academic year (AY 2017-2018) at the CNUCOP. Didactic IPE descriptions for the P1 and P2 years are provided in the preceding section.

September 2017 – Pharmacy, Medicine, and Nursing Students at CNU - Diabetic Ketoacidosis (DKA) Case using two Sim Man (manikins SimLab & OSCE Rm B) with observation & debrief: This IPE event included our second year COM (90 students) and third-year COP (65 students), along with Sacramento State SON (15 students). The day began with all of the students gathering in the M2 classroom to define Interprofessional Education, the goals of the day, and the definition and workup of a Diabetic Ketoacidosis (DKA) with a review by a COM faculty member. The students then split into five multi-collegiate groups, and periodically returned to work through the case with the manikins at specific times throughout the day. The students in each session were divided into two teams: one to work hands-on with the manikins, and the other to observe the hands-on team's case work-up. The session ended with all of the session's students debriefing the case from each respective health care professional's perspective. CNU COP students were assessed for meeting CNU IPE ILO (also known as CNU COP PLO 5) and were required to write a reflection paper on the event.

October 2017 – Pharmacy and Nursing Students at Sacramento State Simulation Center - Pancreatitis Case: This IPE experience was provided along with the combined IPE session with SON at Sacramento State's Simulation Lab. CNU COP P3 class of 65 students and Sacramento State SON class of 90 students worked together in teams on a pancreatitis patient case in the Simulation Lab, followed by a case-based round table to discuss current pancreatitis care and treatments and care, from both pharmacy and nursing perspectives. The pharmacy students were required to write a reflection paper on the event. In AY 2018-2019, a formative assessment administered through ExamSoft was added to bolster IPE readiness.

November 2017 – Pharmacy and Nursing Students at CNU - Diabetes Case: This IPE Case Conference included the CNU COP P3 class of 65 students and Sacramento State University SON class of 90 students worked together in teams to discuss a diabetes patient case in the P3 classroom. The teams worked up their case, formulated a patient care plan and posted their plan for class discussion with all teams using a "gallery walk". Participating CNUCOP and SON faculty led the students in class discussion and debrief. CNUCOP students were required to write a reflection paper on the event.

March 2018 – Pharmacy and Nursing Students at Sacramento State Simulation Center - Congestive Heart Failure Case: CNU COP P2 class of 125 students and Sacramento State SON class of 90 students worked together in teams first in the Simulation Lab, and then followed by a case-based round table discussion of current CHF treatments and care, from both pharmacy and nursing patient care considerations and

approaches. The pharmacy students were required to write a reflection paper on the event, and the reflection paper was assessed by faculty using a rubric.

April 2018 – Pharmacy, Medicine, and Nursing Students at CNU – Geriatric case using two Sim Man manikins (SimLab & OSCE Rm B) and with Room 181 for observation and debrief: This IPE event was conducted collaboratively with COP P3 (65 students), COM M2 (90 students), and Sacramento State SON (15 students). The day began with all of the students gathering in the M2 classroom to review the IPE goals working around an end-of-life hospice care setting for the elderly patient. Students had to formulate and design a team-based care plan based on a patient case, provide care around the patient bedside, and debrief with faculty. CNUCOP students also had to provide individual self-reflections that were graded.

April 2018 – Pharmacy and Nursing Students at CNU - Medication Error Case: This IPE experience was provided along in a combined IPE session with SON at the CNU campus. CNU COP P2 class of 125 students and Sacramento State SON class of 90 students worked in teams to discuss a hospital medication error occurrence and suggest ways to prevent the error from repeating, from both pharmacy and nursing perspectives. The pharmacy students were required to write a reflection paper on the event, and the reflection paper was assessed by faculty using a rubric.

4. Assessment of the CNUCOP CIM-IPE Program.

In general, the required and elective courses which include an IPE component map to PLO 5 and its sub-domains. Graded components of the IPE courses are internally mapped to PLO 5 thereby allowing for outcomes assessment across the entire program. These data are funneled into the University's Institutional Learning Outcomes (ILOs) All CNUCOP syllabi include rubrics that allow for meaningful assessments to be made. The assessment and curriculum committees, as well as the Chair of IPE, work in tandem to ensure that the data generated from formative and summative assessments, student surveys, and self-reflections are reviewed and that appropriate improvements are made. The assigned IPE cases whether used in a Case Conference or simulation format are graded components of the required courses. Assessment data are analyzed by placement into "needs development/initial", "developing", "developed", and "proficient" categories based on rubrics. A brief summary of assessment pertaining to IPE across the CNUCOP curriculum for the latest completed AY follows.

Course name (Number of Pharm.D Students)	PRC 710-HF (N = 117)	PRC 710-ME (N = 117)	PRC 809-DKA (N = 67)	PRC 809-DM (N = 67)	PRC 809-HF (N = 67)	PRC 810-GF (N = 68)
IPE modality	SimLab	ICC	SimLab	SimLab	ICC	SimHos
Evaluation scores	(%)	(%)	(%)	(%)	(%)	(%)
Mean (SD)	100 (2)	98 (13)	95 (4)	95 (5)	98 (0)	91 (19)
Median	100	100	98	98	98	100
Minimum	80	0	73	72	98	0
Maximum	100	100	98	100	98	100

Percentile ranking						
25th percentile	96	90	85	94	90	91
75th percentile	100	100	98	98	98	100
Performance indicators	(%)	(%)	(%)	(%)	(%)	(%)
Initial stage	0	2	0	0	0	3
Developing stage	0	0	1	3	0	7
Developed stage	1	1	6	3	0	12
Proficient stage	99	97	93	94	100	78

Table 4. Student

SimLab=High fidelity simulation with content emphasis; ICC Interprofessional Case Conference; SimHos=High fidelity simulation with process emphasis; PRC=Longitudinal Practicum Course; PRC 710-HF=second professional year longitudinal practicum course with heart failure IPE high fidelity simulation with pharmacy and nursing students; PRC 710-ME=second professional year longitudinal practicum course with medication error IPE interprofessional case conference with pharmacy and nursing students; PRC 809-DKA=third professional year longitudinal practicum course with diabetic ketoacidosis with IPE high fidelity simulation with nursing and medical students; PRC 809-DM=third professional year longitudinal practicum course with diabetes IPE interprofessional case conference with pharmacy and nursing students; PRC 809-HF=third professional year longitudinal practicum course with heart failure IPE interprofessional case conference with pharmacy and nursing students; PRC 810-GF=third professional year longitudinal practicum course with high fidelity simulation with process emphasis IPE geriatric fall case with medical, nursing and pharmacy students.

Evaluation and Performance Analysis on IPEC Core Competencies for Six IPE Activities in the CIM-IPE Curriculum

In AY 2017-2018, for the P2 year spring course PRC-710, each of the IPE cases on Congestive Heart Failure and Medication Errors (COP and SON) comprised 10% of the final grade. Overall, for the 2017-2018 academic year, assessment data for PRC-710 show that 99% of the students attained proficiency in the Congestive Heart Failure IPE simulation activity, while only 1% were at the initial development stage. Similarly, for the Medication Errors Case Conference, based on individually graded self-reflections of 117 students, 97% attained proficiency in the goals and outcomes of the IPE event, with 1% at the developed and 2% at the initial stage. This Medication Error Case, for example, measured the ability of students to work in interprofessional teams for a 3-stage simulation case unfolding in the Emergency Room, involving Telemetry, and discharge phases, where the students had to learn to assess the patient, review their medications, and plan for discharge, all of which were assessed in the individual reflection.

For the P3 year, fall PRC 809 course, for the IPE team management of diabetic ketoacidosis case, assessment data showed that 93% of students attained proficiency while 6% were at the developed and 1% at the developing stage. Similar trends were observed for the IPE in acute pancreatitis cases that unfolded in three stages. PRC 809 reflection paper #3 (SON at CNU): 78% proficient, 12% developed, 7% developing, 3% initial

Efforts have been made to increase faculty expertise in IPE. Several CNUCOP faculty members have attended annual regional and/or national IPE conferences to help ensure we are fully compliant with ACPE standard 11.

Effective communication between all stakeholders has helped our IPE program be successful. A University level IPE Committee has been established to further improve communication. This committee is composed of the COP and COM directors of IPE, faculty members from COP and COM, and student representatives from COP and COM. External stakeholders are also invited to participate in meetings. This Committee discusses planning for future

collaborative IPE events and the expansion of the program. The Committee meets at least quarterly and immediately prior to any scheduled events.

Different Assessment Strategies for Different Healthcare Education Programs. Please note that due to the differences in accreditation criteria for the participating colleges of medicine, pharmacy, psychology, and dental medicine, CNU has adopted different strategies for assessment and evaluation of IPE. Academic freedom is allowed and at the discretion of the leadership of each professional program, assessment of IPE may differ from college to college. For instance, the CNUCOM recently made a decision to begin to assess each student in IPE activities.

A detailed example of programmatic assessment is provided for assessment data for the CNUCOP from AY 2018-2019, the previous academic year at the time of writing of this report. Please refer to Appendix 1.

Experiential Education

The purpose of the experiential education component of the curriculum is to provide the pharmacy student with practical experience in various aspects of the profession of pharmacy. The student gains experience in problem solving and providing patient care services while applying the basic and pharmaceutical sciences learned in the classroom and practice laboratories. A pharmacist preceptor directs the majority of practice experiences. Each experience provides the student with an opportunity to incorporate learned didactic information into the development of the skills necessary to be a competent pharmacy practitioner.

The Experiential Education Program is divided into two parts: Introductory Pharmacy Practice Experience (IPPE) and Advanced Pharmacy Practice Experience (APPE). In the second and third years, the students participate in Introductory Pharmacy Practice Experiences (IPPE I-IV) to gain practice experiences in community, institutional and specialty practice settings. Throughout IPPE I-IV, the students practice and strengthen their patient care skills through a wide array of pharmacy practice experiences. The IPPEs compliment the didactic curriculum and involve a variety of experiences including shadowing pharmacists, interviewing and counseling patients, as well as performing patient assessments. The students are required to keep a portfolio containing descriptions and reflections of these experiences.

Both IPPE and APPE components have “Required” and “Specialty” practice experiences in the curriculum. Each “Specialty” rotation is designed to give the student the opportunity to explore career opportunities and seek training in some of pharmacy’s less traditional roles. The current lists of specialties include, but are not limited to, long-term care, research, PBM, pharmacy professional organizations, industry, compounding, psychiatry, cardiology, oncology, infectious disease, critical care, trauma, organ transplant, and emergency.

In general the students’ ratings of their preceptors are high, and while preceptor response rates to AACP surveys are low, ratings of our students and the College in general by preceptors are also mostly positive (see *Appendix 9* for a copy of the 2016 Preceptor Survey Report).

Since 2019, CNUCOP engaged in a period of further enhancements to our experiential learning curriculum through a serious self-reflection. Specifically, our efforts in these areas began with engaging our students. Following the 2019 Site Visit, CNUCOP CC held a Student Focus Group to better understand students' concerns regarding the variability of rigor across IPPEs. Through this process, the College identified opportunities to enhance student preparation, orientation for IPPEs, and the actual IPPE experience. The following needs were identified and were used to develop strategies to effectuate positive change: 1) development of clear delineation of student expectations and learning outcomes for IPPEs, 2) provision of theoretical, academic, practical, and practice-related introductory content to prepare students for IPPE experiences, and 3) increasing CNUCOP contact, training, and engagement with site preceptors.

In terms of process, these identified needs were shared with the DEC and the Experiential Education Department (EED). The EED was charged with creating a plan to enhance IPPE rigor proactively and to ameliorate any IPPE site variability.

Strategy with Actionable S.M.A.R.T Plan. The plan that the CNUCOP EED developed in response to these needs included the following action items: 1) increasing site visitation and assessment, 2) revising the Experiential Education Handbook, 3) reviewing, revising, and standardizing the CNUCOP IPPE course syllabi, and 4) enhancing onboarding and expectation setting through pre-IPPE/APPE preparedness sessions.

EED operationalized this plan in early fall 2019 with data collection to evaluate plan effectiveness occurring through various strategies as outlined below. Each of these areas is discussed below, with additional details included, as appropriate.

Site Visitation and CQI. In 2019, through a concerted departmental effort, EED increased the number of faculty-initiated physical and virtual site visits from 29 in the previous year to 95, and developed additional 19 new sites to increase the opportunities for practice experiences. Detailed site and preceptor assessments were completed, and preceptor onboarding and orientation were done through virtual or physical means. Appendix 12.7 & Appendix 12.8 To ensure CQI, EED bolstered the annual review of evaluations of experiential rotations from students and preceptors and evaluates sites and preceptors to ensure consistency and rigor across the program. Please also refer to Standards 20 and 22.

The Experiential Education Handbook. The EED Handbook was revised in June 2019 and provides clear requirements of all aspects of experiential education such as preceptor requirements, expectations and scheduling, evaluations, and policies. https://pharmacy.cnsu.edu/images/PDFs/CNCP_Experiential_Education_Handbook_6-6-19_Final_2.pdf.

Codifying CNUCOP Site Expectations Through Syllabi. To ensure the alignment of all our expected outcomes, the EED requested the assistance of the college Assessment (AC) and Curriculum Committees (CC). In response, the CNUCOP AC and CC reviewed and mapped all IPPE syllabi to Entrustable Professional Activities (EPAs) and Course Learning Outcomes (CLOs) Appendix 12.1, 12.2, & 12.3 which are provided to each preceptor through the CORE ELMs system. The appropriate minimum curriculum has been identified in the IPPE syllabi and has been confirmed through the CNUCOP Curriculum Committee, while allowing

preceptors academic freedom for each unique practice site.

Clarifying Site-Onboarding Protocol. Our research also indicated that the students needed to become more proactive in their communication with their preceptors. In response, CNUCOP developed guidance to emphasize the students' essential role in enhancing communication with site preceptors. IPPE syllabi now emphasize that at the start of each rotation, and subsequently, at the midpoint and final evaluations: expectations of each site should be reviewed, students should verify the syllabus and checklist activities with the preceptor, and schedules should be created to meet all syllabi requirements so that students understand how their rotation matches syllabi expectations.

In addition to the above direct measures, the following initiatives helped further support ongoing efforts at the College in this area.

IPPE Preparedness Sessions. To inculcate these changes and to bolster understanding of the program, the EED developed a "Pre-IPPE Bootcamp" to ensure comprehension of 1) specific goals of rotation, 2) required activities, 3) checklists Appendix 12.10 4) available resources, and 5) tips for success. Appendix 12.4.Examples of topics included 1) experiential preparedness, Appendix 12.5 & Appendix 12.10 2) the "Virtual Skills Training Program", which included 24 sessions for P1s and 17 sessions for P2s, Appendix 12.6 and 3) requirements, student and preceptor expectations, scheduling, and evaluation. Additionally, 0.5 units were added to IPP607: Introduction to Pharmacy Practice, to further enhance student preparation approved by CC.

APPE Preparedness Sessions. We extended the preparedness work to the APPE portion of the program as well. In spring 2020, immediately before APPE rotations, preparedness sessions were developed to enhance students' understanding of specific goals of each core rotation type, required activities, and available resources. Appendix 12.4 Mandatory break-out sessions for each APPE region were held on separate days after rotation assignment to answer questions on assigned locations. Examples of presentations to the students include Appendix 12.5 and Appendix 12.11. Additionally, AmCare Guidelines Summary Appendix 12.12 was provided to students entering APPEs for review.

The CNUCOP Co-Curriculum, and IPPE and APPE Preparedness. The EED also collaborated with OSAA to incorporate the newly developed Professional Career Development Seminars into the preparedness programs. PCDS enhanced IPPE preparation by improving networking, communication, site expectations, and overall professional development. Appendix 12.9 (Please also see Standards 3 and 4.)

Impact. The College has developed an extensive internal survey Appendix 3.2A in collaboration with the University Office of Institutional Effectiveness, the Director of Assessment, and the AC. This survey was disseminated to students in the P1-P3 years in the program. The survey, by deliberate design, included questions similar to those in the AACP Graduating Student Survey. Appendix A We feel encouraged that student perception gauged through survey responses to both our internal survey and the 2020 AACP Graduating Student Survey Appendix A show a promising positive trend. For example, during the 2019 Site Visit, our accreditors expressed concern, which we shared, that students in 2017, 80.0% of respondents found their IPPEs valuable as preparation for the APPEs. In 2018, the College's positive response was 83.3%, while the national benchmark was 84.3%. However, the 2020 AACP Graduating Student Survey Appendix A data show an increase in the positive response rate to 88.3%, which is significant also since the

response rate was appreciably higher this year at 95.7%, with 111 of 116 students responding.

Advanced Pharmacy Practice Experiences

Enhancing the CNUCOP APPE Evaluation Student Self-Assessment Survey. First, to understand which APPE-related subjects and topic areas needed to be addressed for boosting student self-assessment and confidence, working with the CNUCOP AC, the Experiential Education Department (EED) improved the internal CNUCOP survey instrument pertaining to APPE rotations. Specifically, survey item wording was improved, and specific questions were added to the internal "APPE Evaluation Student Self- Assessment" survey with guidance from the CNUCOP AC. A specific instance of survey item restructuring, for example, resulted in the addition of items regarding student perceptions of APPE preparedness and pre-APPE preparation, as can be seen from Appendix 13.1.

Student Focus Groups. Next, in order to enhance and further developed areas identified by this process, we adopted the deliberate approach of identifying, in as much detail as possible, the specific components that could be enhanced or added to these topic areas. This occurred through Student Focus Groups (SFG), which were subsequently continued through the year by the CNUCOP CC to assist the College in continually thering data for CQI. Appendix 9.4 One example of this process was the May 12th, 2020 SFG, which was convened to ensure that ongoing efforts to enhance student confidence of APPE preparedness were effective. Furthermore, information collected through the internal survey and SFGs, as described above, was funneled to the EED administration and faculty. Based on the feedback received from the above-listed sources, the College took concrete steps to build and augment parts of our Pre-APPE curriculum to ensure that students gained confidence in their abilities and were adequately prepared, as outlined below in detail.

CNUCOP Faculty-led APPE Preparedness Sessions. APPE Preparedness Sessions were created to improve students' understanding of the expectations and learning objectives of the various APPE rotations. Appendix 12.5 Specifically, during these APPE Preparedness Sessions, EED faculty discussed tips for success for specific APPE rotations and provided opportunities for question-and-answer sessions for all students regarding upcoming rotations. Please refer to Appendix 12.5 for details and examples of topics covered during these sessions.

In addition to these specially convened sessions, care was taken to align the ongoing "Professional Career Development Series (PCDS)" to compliment APPE preparedness efforts by encouraging students to prepare their career portfolios. Thus, the College adopted a holistic approach to APPE preparedness by providing APPE-related information preemptively including goal setting and also emphasizing student self-preparation. Appendix 12.9

Restructuring and Enhancing "Practicum Courses". The College offers progressive "practicum" readiness courses (PRCs) for skills training throughout the didactic curriculum. A careful review of the PRC curriculum revealed the need for serious revisions in these courses. Following the ACPE Site Visit, to boost student confidence and enhance student self- perception of APPE readiness, the College invested considerable resources including faculty time and effort to further enhance the PRC courses. For example, PRC 810, offered in the P3 Year, is a course that precedes the start of APPE rotations. This course was

extensively revamped to include more extensive and advanced SOAP-noting and topics related to acute care.

b) Student Learning and Success

i. Student Retention and Graduation Rates

The on-time graduation rate for the class of 2016 was 85.9%, a slight improvement on the previous year, but an overall drop if compared with the first graduating cohort (Table 2). Two classes alone (2014 and 2017) accounted for over half of all the dismissals/withdrawals to date and the class of 2016 alone accounted for nearly a third of students who have been held back.

The class of 2017, with the highest dismissal rate on record, has the second lowest Science GPA on admission, which may explain some of the academic difficulty experienced by those who were dismissed. The class of 2014 on the other hand, had the highest admission GPAs of all the classes, but the higher attrition for this class was due to withdrawal, and mostly for personal reasons rather than academic (see Table 3).

Further investigation about the students in the class of 2016 who were held back a year suggests that academic difficulty was not the only or even main reason for delaying their graduation: 5 out of the 8 students in this class took a leave of absence, either because of illness, pregnancy, or other family-related reason.

The current class of 2020 has the lowest science GPA on admission of all classes to date, so the College will closely monitor their progress through the program to ensure as far as possible that dismissals because of poor academic performance are kept to a minimum.

able 2: Matriculation, graduation and progression data: 2018-2016

Description	Class of:									TOTAL
	2012	2013	2014	2015	2016	2017	2018	2019	2020	
Matriculated	89	90	100	106	107	114	121	68	126	921
[Transfer student]	-	-	-	-			[1]		[3]	[4]
Withdrew	2	-	8	4	6	2	1	3	1	27
Dismissed	1	-	3	1	1	9	2	1	1	19
Held back (on a 5-year plan)	3	1	-	3	8	4	4		2	25
Graduated on time	83	89	89	98	92	[99]	[114]	[64]	[122]	[850]
Total graduated	83	92	90	98	95	[107]	[118]	[68]	[122]	[873]
Percentage graduating on time	93.2	98.9	89.0	82.3	85.9	[86.8]	[95.0]	[94.1	[96.8	[92.29]

Enrollment class:	**2017**	**2018**	**2019**	**2020**	**2021**	**TOTAL**
Graduating class of:	**2021**	**2022**	**2023**	**2024**	**2025**	
Matriculated	135	144	91	79	70	1436
Transfer students (in)	1	17	22	3	0	50
Withdrawals	3	4	1	3	2	43
Dismissals	3	2	0	0	0	24
Delayed graduation (held back)	6	5	4	3		48
Graduated on time (ie, in four years)	123	133	[86]	[73]		1094
Total Graduated	129	156	[113]	[80]		1154
Percentage graduating on time	91.1	92.3	[94.5]			
Percentage academic attrition	2.2	1.4	0			
Percentage attrition	4.4	4.2	1			

While graduation rates vary for each cohort they are well within acceptable standards as laid out in ACPE's *'Policies and Procedures for ACPE Accreditation, 2016'* (where dismissals should not exceed 6% of the matriculating class size, withdrawals should not exceed 6%, the number held back should not exceed 15%, while total attrition overall should not exceed 24%). The average *on-time* graduation rate over the lifetime of the program so far is 92%.

The anticipated graduation rate for the class of 2017 (bracketed data in table 2) is expected to be 86.8% if there are no additional withdrawals or dismissals, so a slight improvement in the on-time graduation rate from the prior year can be expected.

Throughout 2016 data collated about previous classes were analyzed to examine the reasons for attrition (Table 3) and to explore any patterns or correlations with other student factors. For some cohorts admissions GPA does sometimes predict student's likelihood of getting academic alerts or being dismissed, but the pattern is not consistent in each and every cohort, suggesting other factors are at play (e.g., see tables 19 to 23).

We know from further investigation that the majority of students are dismissed or withdraw in their first year, and anecdotal evidence suggests that involvement in too many student organizations in the first year distracts students from academic work and adversely affects performance of weaker students; furthermore some students were having trouble adapting to TBL. To address some of these issues the College decided to review the Academic Progression Policy in 2016 and some changes were made to help ensure first year students in particular were not harshly affected if they have a poor first semester. The current policy is provided in *Appendix 10.*

Table 3: Reasons for attrition

		Graduating class									**TOTAL**
		2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	
Reason for dismissal:	Academic	1	0	3	1	1	5	2	1	1	15
	Other	0	0	0	0	0	4	0	0	0	4
Reason for withdrawal:	Personal	2	0	2	2	2	1	0	3	0	12
	Medical	0	0	1	0	0	1	0	0	0	2
	Financial	0	0	2	1	0	0	1	0	0	4
	Transferred	0	0	2	1	1	0	0	0	1	5
	Other	0	0	1	0	3	0	0	0	0	4
	Total dismissed or withdrew	**3**	**0**	**11**	**5**	**7**	**11**	**3**	**4**	**2**	**46**

Learning Outcomes

The College has a learning outcomes structure that extends from the course and co-curricular levels to the programmatic and institutional levels. The learning outcomes are embedded within the curriculum, and assessed late in students' program of study at points designated for mastery of the learning outcomes. Each learning outcome, at all levels, has a corresponding rubric that identifies key indicators of achievement of the outcomes and varying levels of student performance.

Course learning Outcomes

Embedded summative assignments and assessments determine students' achievement of *Course Learning Outcom*es (CLOs). CNUCOP's Team-Based Learning (TBL) format places all students in learning teams; this format is conducive to individual and team formative and summative assessments, as each individual student is ultimately responsible for learning and this responsibility is reflected in the total performance of the team. The TBL focus further allows students to work on their communication and professionalism, individually and as a team. Daily formative assessments provide feedback needed to make improvements in teaching and learning. Individual-Based Application Tests (IBATs) and Team-Based Application Tests (TBATs) provide feedback for students on their ability to apply what they have learned. Additional formative assessments include the Individual Readiness Assurance Tests (IRATs) and the Team Readiness Assurance Tests (TRATs). Students also obtain feedback through the Individual Cumulative Assessment Tests (ICATs) and Team Cumulative Assessment Tests (TCATs). This method of assessing students' course concepts' learning reinforces their learning at a deeper level. Assessments are varied and adapted to the particular topic or skill being tested; they include posters, papers, presentations, performances, course exams, Milestone Exams, and external exams such as the PCOA (see section 2c).

The Course Learning Outcomes (CLOs) - as well as the corresponding rubrics - are published in course syllabi, thus expectations for achievement are defined and articulated to students, and all student learning is assessed using these rubrics. Course assessments are tagged in ExamSoft against the CLOs, and the CLO data is compiled each semester with results presented in CLO reports to help inform the annual curricular review cycle. Student learning outcomes' results are collected longitudinally by the Director of Assessment to monitor student progression and shared with individual course instructors.

Students' performance level (on all levels of learning outcomes) is described as *Initial* if average performance is below 69% in all course learning outcomes, as *Developing* if between 69 and 78%, as *Developed* if average performance on a CLO is between 79 and 89%, and as *Proficient* if average performance is above 89%. The College aims to have most students reach the *Developed* level (≥79%) in all course learning outcomes (CLOs). When students reach only the *Initial* level (<69%), faculty are expected to make adjustments to their teaching or assessments in order to show improvements in student learning and achievement of the CLOs next time the course is delivered.The full CLO report for 2016 is given in *Appendix 11.* To illustrate how the CLOs are presented in the report the dashboard excerpt below shows the summary of performance in Spring 2016 courses for the Class of 2019 while the narrative identifies the CLOs with the highest and lowest performance: it shows that their performance on course learning outcomes was primarily in the range of *Developing* to *Developed*, and occasionally reached *Proficient*.

Here is the summary of Class of 2019 performance during Spring 2016

P1	**CLO**		**CLO**		**CLO**		**CLO**		**CLO**		**CLO**	
PHAR 622	**1**	**P**	**2**	**D**	**3**	**Dp**	**4**	**P**	**5**		**6**	

P1	**CLO**		**CLO**		**CLO**							
PHAR 633	**1**	**D**	**2**	**D**	**3**	**Dp**						
P1	**CLO**		**CLO**		**CLO**		**CLO**					
PHAR 634	**1**	**P**	**2**	**P**	**3**	**D**	**4**	**D**				
P1	**CLO**		**CLO**		**CLO**							
PHAR 642	**1**	**Dp**	**2**	**D**	**3**	**P**						
P1	**CLO**		**CLO**		**CLO**							
PHAR 661	**1**		**2**		**3**							

The CLOs with the highest (*Proficient*) average performance level were the following:

- Describe the basic mechanisms of pathology (PHAR 622, CLO 1: 90.58%)
- Describe the major mechanism of action and adverse effects of pharmacologic agents used to treat selected neurologic, psychiatric, and neuroendocrine disorders (PHAR 622, CLO 4: 90.10%)
- Describe and discuss the epidemiologic principles used in the study of medication use in a naturalistic setting (PHAR 634, CLO 1: 92.43%)
- Effectively communicate information to ensure safe and proper usage of nonprescription medicines (PHAR 642, CLO 3: 93.96%)

The CLOs with the lowest (*Developing*) average performance level were the following:

- Describe and discuss the anatomy and physiology of the central and peripheral nervous system and the neuroendocrine system (PHAR 622, CLO 3: 78.77%)
- Selects specific drug products based on pharmaceutical, therapeutic or bioequivalency parameters (PHAR 633, CLO 3: 75.94%)
- Evaluate a patient's nonprescription medication needs using a systematic assessment approach (PHAR 642, CLO 1: 77.68%)

Program Learning Outcomes

CNUCOP faculty also collectively developed the learning outcomes for the pharmacy program (see box below) and the institution; they were originally loosely based on professional accreditation standards. However, in anticipation of the new 2016 Standards the PLOs were revised in the summer of 2015 to align with the new standards of the professional accreditor. Thus, the program learning outcomes (PLOs) are now based on the Accreditation Council for Pharmacy Education (ACPE) standard which drew on the American Association of Colleges of Pharmacy (AACP)'s CAPE educational outcomes. The PLOs are published in the catalog and printed on posters in the classrooms, while the PLO results for each class are published on the website. All courses map their course learning outcomes to the PLOs and ILOs where relevant and these maps are used to ensure coverage of all learning outcomes and identify courses where signature assignments are used to measure and validate the outcomes (see *Appendices 12 and 13* for PLO and ILO maps respectively).

Program Learning Outcomes:

1: Foundational Knowledge. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to apply the foundational sciences to the provision of patient-centered care

2: Essentials for Practice and Care. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to provide patient-centered care, manage medication use systems, promote health and wellness, and describe the influence of population-based care on patient- centered care

3: Approach to Practice and Care. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to solve problems; educate, advocate, and collaborate, working with a broad range of people; recognize social determinants of health; and effectively communicate verbally and nonverbally

4: Personal and Professional Development. Uses the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate self-awareness, leadership, innovation, entrepreneurship, and professionalism

5: Interprofessional Competence. Uses the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate appropriate values and ethics, roles and responsibilities, communication, and teamwork for collaborative practice

As mentioned, the College conducts a cyclical review of assessment data to ensure that student learning outcomes meet institutional standards for student performance, which include student achievement of learning outcomes at the "Developed" level for all PLOs and ILOs (Core Competencies). For the College, all classes of graduates have demonstrated achievement of the PLOs at the "Developed" or higher level.

The CNUOCOP PLO Report

Each year, the Office of Assessment prepares and disseminates to the stakeholders a report of the Program Learning Outcomes. This PLO report is discussed at the Dean's Executive Council, and the college's Assessment and Curriculum committees. This report demonstrates student performance on individual signature assignments, which directly evaluates the achievement through performance-based assessment of both Program Learning Outcomes (PLOs) and Institutional Learning Outcomes (ILOs).

Aspects from the CNUCOP PLO Report from academic yar 2019-2020 are presented below.

The PLOs at CNUCOP directly correspond to CAPE domains/ACPE standards 1 through 4. PLO 5 was specifically established to assess student achievement of interprofessional competency. Nearly all of the PLO and ILO were found to be evaluated through an ample number of assessments. However, only one assignment assesses PLO 4.3 (innovation and entrepreneurship), two assignments assess PLO 4.4 (Professionalism) and three assignments assess ILO 5.2. (Demonstrates understanding of experimental designs and methodology).

Student proficiency was sufficiently demonstrated during the entire didactic curriculum and specifically during the P3 year where students are expected to master the skills required to achieve the outcomes. Some outcomes that were identified to be relatively lower were ILO 5.1 (Demonstrates ability to perform calculations and apply mathematical principles to solve problems), ILO 5.2 (Demonstrates understanding of experimental designs and methodology), and ILO 5.3 (Demonstrates logical and appropriate interpretation of data). However, no deficiencies were identified by the end of the P3 year. In general, it does not appear that there are any major areas of deficiency based on the PLOs and ILOs.

Therefore, no significant changes on the assessment of these specific outcomes are warranted based on this data. Individual signature assignments are the primary method by which the achievement of these outcomes are evaluated since they utilize a performance-based assessment; however, these outcomes are also assessed through summative examinations and reflections papers of completed co-curricular events.

Individual Signature Assignment Results

Course	CAS 606	CAS 702	CAS 702	CAS 702	CAS 702	CAS 702	CAS 703	PRC 709	PRC 709	PRC 709	PRC 710	PRC 710	PRC 710	PRC 710	PRC 710	PRC 710
Assignment	Individual statistical analysis assignment	Formal Disease State Presentation	Telemedicine Patient Counseling	Patient Voicemail Assignment	Provider Voicemail Assignment	Dear Patient Letter	Individual Literature Evaluation Assignment	Integrated Soap Note	IPE	Patient counseling	IPE Assignment #1	Calculation Assignment	Literature Evaluation Assignment	IPE assignment #2	Integrated Soap Note	Patient Counseling
MEAN	77%	98%	99%	100%	100%	99%	100%	85%	100%	92%	88%	88%	99%	98%	88%	95%
Standard Deviation	21%	2%	2%	1%	1%	2%	1%	6%	0%	7%	13%	6%	2%	3%	10%	5%
MEDIAN	81%	97%	100%	100%	100%	100%	100%	85%	100%	94%	96%	89%	100%	100%	90%	96%
MIN	31%	91%	91%	97%	97%	89%	96%	70%	100%	58%	50%	68%	94%	89%	40%	45%
MAX	125%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	95%	100%	100%	100%	100%
25th Percentile	63%	97%	97%	100%	100%	100%	100%	81%	100%	90%	75%	86%	98%	100%	85%	94%
75th Percentile	88%	100%	100%	100%	100%	100%	100%	90%	100%	97%	100%	95%	100%	100%	95%	98%
% Initial	44%	0%	0%	0%	0%	0%	0%	0%	0%	1%	12%	2%	0%	0%	4%	1%
% Developing or better	56%	100%	100%	100%	100%	100%	100%	100%	100%	99%	88%	98%	100%	100%	96%	99%
% Developing	4%	0%	0%	0%	0%	0%	0%	22%	0%	3%	16%	7%	0%	0%	11%	1%
% Developed or better	51%	100%	100%	100%	100%	100%	100%	78%	100%	96%	72%	91%	100%	100%	85%	99%
% Developed	30%	0%	0%	0%	0%	1%	0%	50%	0%	22%	21%	57%	0%	11%	29%	4%
% Proficient	21%	100%	100%	100%	100%	99%	100%	28%	100%	74%	51%	34%	100%	89%	55%	94%

Course	CAS 801	CAS 804	PRC 809	PRC 809	PRC 809	PRC 809	PRC 809	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810
Assignment	Individual Essay	Final Term Paper	IPE Reflection Paper with COM	Integrated Soap Note	Literature Evaluation	Patient Counseling	IV Lab Assessment	Literature Evaluation	IPE 1 (1/28)	IPE 3 (4/9)	IPE Grand Rounds Reflection	Integrated Soap Note	IV Lab Day	AmCare Case Presentation	Patient Counseling
MEAN	93%	95%	100%	100%	98%	82%	95%	94%	99%	99%	77%	94%	91%	90%	94%
Standard Deviation	8%	9%	0%	0%	9%	8%	3%	5%	2%	1%	4%	24%	8%	7%	6%
MEDIAN	95%	95%	100%	100%	100%	82%	96%	95%	100%	100%	78%	100%	94%	92%	96%
MIN	50%	0%	100%	100%	0%	66%	85%	78%	95%	96%	68%	0%	57%	60%	76%
MAX	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	85%	100%	100%	101%	100%
25th Percentile	90%	95%	100%	100%	97%	76%	93%	93%	100%	98%	75%	100%	90%	86%	91%
75th Percentile	98%	100%	100%	100%	100%	87%	98%	98%	100%	100%	80%	100%	96%	96%	99%
% Initial	2%	1%	0%	0%	1%	8%	0%	0%	0%	0%	7	6%	4%	1%	0%
% Developing or better	98%	99%	100%	100%	99%	92%	100%	100%	100%	100%	5%	94%	96%	99%	100%
% Developing	1%	0%	0%	0%	0%	32%	0%	2%	0%	0%	126	0%	6%	9%	2%
% Developed or better	97%	99%	100%	100%	99%	60%	100%	98%	100%	100%	95%	94%	90%	90%	98%
% Developed	16%	3%	0%	0%	0%	39%	7%	12%	0%	0%	86	0%	13%	25%	17%
% Proficient	81%	96%	100%	100%	99%	20%	93%	86%	100%	100%	65%	94%	77%	65%	81%

CNUCOP Courses

PBS 601: Cell and Molecular Biology & Biochemistry

PBS 602: Pathophysiology & Pharmacology I: Neuro & Psychiatric

PBS 603: Medicinal Chemistry & Physical Pharmacy

PBS 604: Pharmacokinetics

PBS 605: Biopharmaceutrics, Drug Delivery, and Calculations

CAS 606: Biostatistics and Pharmacoepidemiology

IPP 607: Introduction to Pharmacy Practice

CAS 608: Self Care

PRC 609: Longitudinal Practicum I

PRC 610: Longitudinal Practicum II

PBS 701: Pathophysiology and Pharmacology II: CV, Diabetes Mellitus & Thyroid)

CAS 702: Communications

CAS 703: Drug Literature Information & Evaluation

PBS 704: Pathophysiology & Pharmacology III: Pulmonary, Renal, GI & GU

CAS 705: Pharmacotherapy I: Neuro & Psychiatric

CAS 706: Pharmacotherapy II: CV, Diabetes & Pulmonary

IPP 707: IPPE Community Practice I

IPP 708: IPPE Community Practice II

PRC 709: Longitudinal Practicum III

PRC 710: Longitudinal Practicum IV

CAS 801: Pharmacy and the Health Care System

CAS 802: Pharmacy Law and Ethics

PBS 803: Immunology and Rheumatology

CAS 804: Pharmacy Management and Economic Principles

CAS 805: Pharmacotherapy III: Renal; GI; Hematology & Oncology

CAS 806: Pharmacotherapy IV: Microbiology and Infectious Diseases

IPP 807: IPPE Hospital

IPP 808: IPPE Specialty

elective

PRC 809: Longitudinal Practicum V

PRC 810: Longitudinal Practicum VI

APP 901: APPE Community

APP 902: APPE Hospital

APP 903: APPE General Medicine

APP 904: APPE Ambulatory Care

Program Learning Outcomes Map

Course	CAS 606	CAS 702	CAS 702	CAS 702	CAS 702	CAS 702	CAS 703	PRC 709	PRC 709	PRC 709	PRC 710	PRC 710	PRC 710	PRC 710	PRC 710	PRC 710
Assignment	Individual statistical analysis assignment	Formal Disease State Presentation	Telemedicine Patient Counseling	Patient Voicemail Assignment	Provider Voicemail Assignment	Dear Patient Letter	Individual Literature Evaluation Assignment	Integrated Soap Note	IPE	Patient counseling	IPE Assignment #1	Calculation Assignment	Literature Evaluation Assignment	IPE assignment #2	Integrated Soap Note	Patient Counseling
1.1		X					X	X	X			X	X		X	
1.2		X						X	X			X			X	
1.3	X	X							X			X				
2.1			X					X		X	X	X		X	X	X
2.2								X			X			X	X	
2.3			X					X		X	X			X	X	X
2.4								X			X			X	X	
3.1	X		X					X		X	X	X		X	X	X
3.2		X	X					X	X	X	X			X	X	X
3.3			X							X	X			X		X
3.4								X			X			X	X	
3.5								X			X			X	X	
3.6		X	X	X	X	X	X	X	X	X	X			X	X	X
4.1											X					
4.2																
4.3																
4.4		X	X						X	X	X			X		X
5.1											X			X		
5.2											X			X		
5.3											X			X		
5.4											X			X		

Course	CAS 801	CAS 804	PRC 809	PRC 809	PRC 809	PRC 809	PRC 809	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810	PRC 810
Assignment	Individual Essay	Final Term Paper	IPE Reflection Paper with COM	Integrated Soap Note	Literature Evaluation	Patient Counseling	IV Lab Assessment	Literature Evaluation	IPE 1 (1/28)	IPE 3 (4/9)	IPE Grand Rounds Reflection	Integrated Soap Note	IV Lab Day	AmCare Case Presentation	Patient Counseling
1.1				X	X	X		X				X		X	X
1.2				X			X					X	X	X	
1.3		X				X	X					X	X		X
2.1	X		X	X			X		X	X	X	X	X	X	
2.2	X	X	X	X		X			X	X	X			X	X
2.3		X	X	X		X			X	X	X	X		X	X
2.4		X	X	X		X			X	X	X	X		X	X
3.1	X		X	X					X	X	X	X			
3.2			X	X					X	X	X	X			
3.3		X	X			X			X	X	X	X			X
3.4	X	X	X	X					X	X	X				
3.5	X	X	X	X					X	X	X				
3.6	X		X	X					X	X	X			X	
4.1		X	X			X									X
4.2		X													
4.3	X	X													
4.4			X				X		X	X	X		X	X	
5.1		X	X						X	X	X				
5.2		X	X						X	X	X				
5.3			X						X	X	X				
5.4			X						X	X	X				

CNUCOP Program Learning Outcomes

PLO 1: Foundational Knowledge. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to apply the foundational sciences to the provision of patient-centered care

1.1. Evaluation of scientific literature. Develops, integrates, and applies knowledge from the foundational sciences (i.e., biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature

1.2. Explanation of drug action. Develops, integrates, and applies knowledge from the foundational sciences (i.e., biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences) to explain drug action

1.3. Advancement of population health. Develops, integrates, and applies knowledge from the foundational sciences (i.e., biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences) to advance population health and patient-centered care

PLO 2: Essentials for Practice and Care. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to provide patient-centered care, manage medication use systems, promote health and wellness, and describe the influence of population-based care on patient-centered care

2.1. Patient-centered care. Demonstrates ability to provide patient-centered care as the medication expert (collect and interpret evidence, prioritize, formulate assessments and recommendations, implement, monitor and adjust plans, and document activities)

2.2. Medication use and systems management. Demonstrates ability to manage patient healthcare needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication use systems

2.3. Health and wellness. Designs prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness

2.4. Population-based care. Demonstrates understanding of how population-based care influences patient-centered care and the development of practice guidelines and evidence-based best practices

PLO 3: Approach to Practice and Care. Demonstrates the knowledge, skills, abilities, behaviors, and attitudes necessary to solve problems; educate, advocate, and collaborate, working with a broad range of people; recognize social determinants of health; and effectively communicate verbally and nonverbally

3.1. Problem solving. Identifies problems; explore and prioritize potential strategies; and designs, implements, and evaluates viable solutions

3.2. Education. Demonstrates ability to educate all audiences through effectively communicating information and assessing learning

3.3. Patient advocacy. Represents the patient's best interests

3.4. Collaboration.
Engages collaboratively as a healthcare team member by demonstrating mutual respect, understanding, and values to meet patient care needs

3.5. Cultural sensitivity. Identifies social determinants of health and acts to diminish disparities and inequities in access to quality care

3.6. Communication. Effectively communicates verbally and nonverbally when interacting with individuals, groups, and organizations

PLO 4: Personal and Professional Development. Uses the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate self-awareness, leadership, innovation, entrepreneurship, and professionalism

4.1. Self-awareness. Examines and reflects on personal knowledge, skills, abilities, beliefs, biases, motivation, and emotions that could enhance or limit personal and professional growth

4.2. Leadership. Demonstrates responsibility for creating and achieving shared goals, regardless of position

4.3. Innovation and entrepreneurship. Engages in innovative activities by using creative thinking to envision better ways of accomplishing professional goals

4.4. Professionalism. Demonstrates behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society

PLO 5: Interprofessional Competence. Uses the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate appropriate values and ethics, roles and responsibilities, communication, and teamwork for collaborative practice

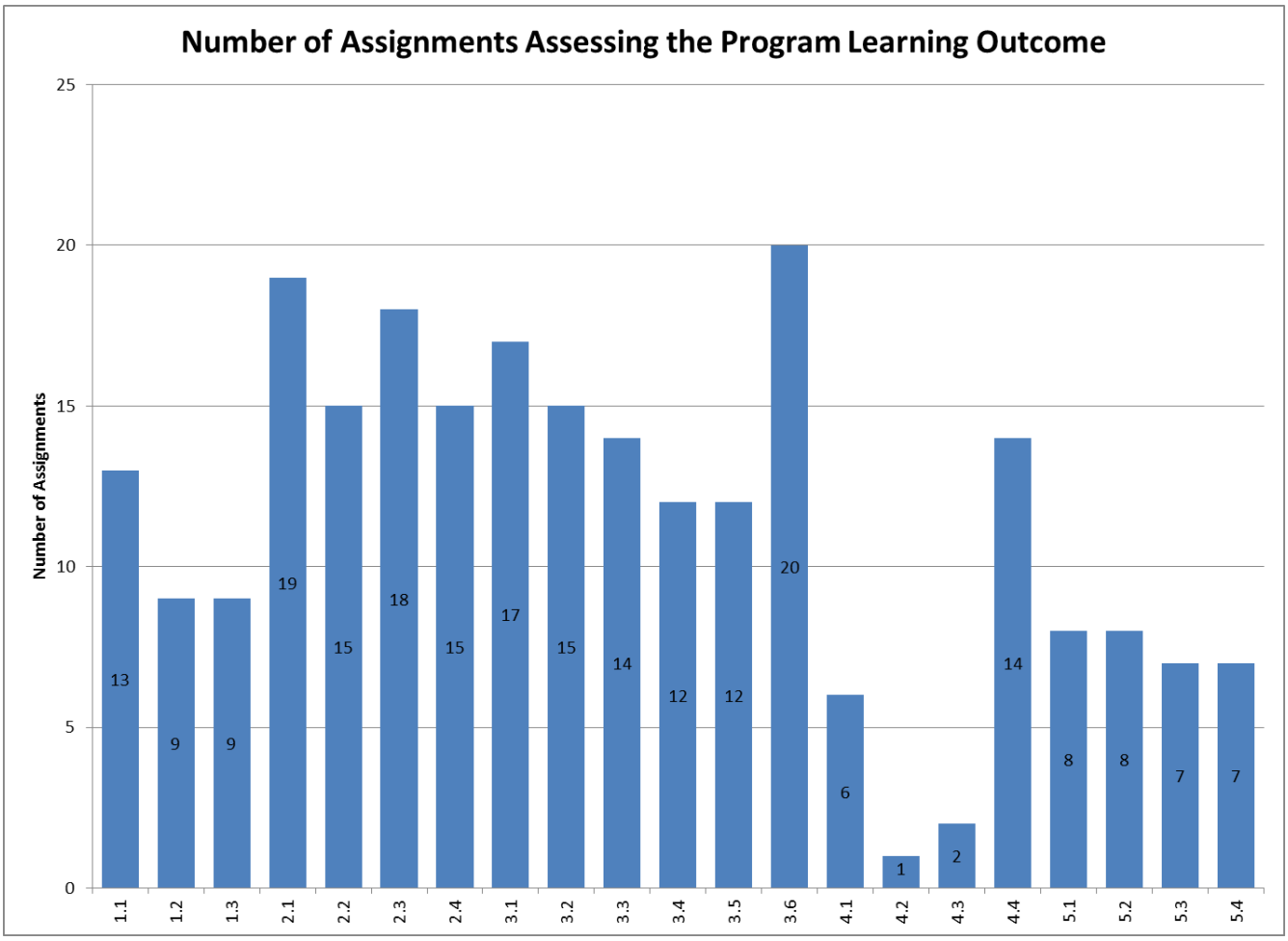
5.1. Values and ethics. Demonstrates ability to work with individuals of other professions to cultivate a climate of mutual respect and shared values

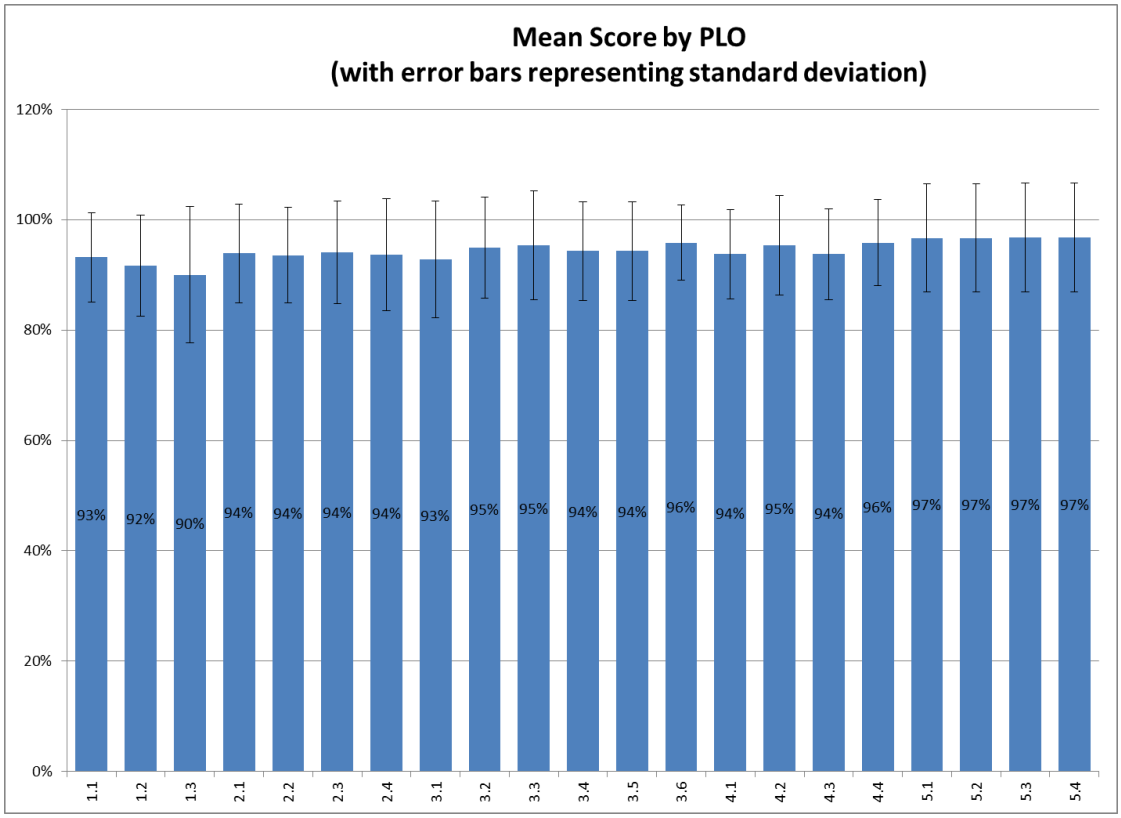
5.2. Roles and responsibilities. Uses the knowledge of one's own role and those of other professions to assess and address the healthcare needs of the patients and populations served

5.3. Interprofessional communication. Demonstrates ability to communicate with patients, families, communities, and other health professionals

5.4. Teamwork. Apply relationship-building values and the principles of team dynamics to perform effectively in various team roles

Overall Results by Program Learning Outcomes




Mean Score by PLO
(with error bars representing standard deviation)
120%
100%
80%
60%
40%
20%
0%
93%
92%
90%
94%
94%
94%
94%
93%
95%
95%
94%
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96%
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96%
97%
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2.4
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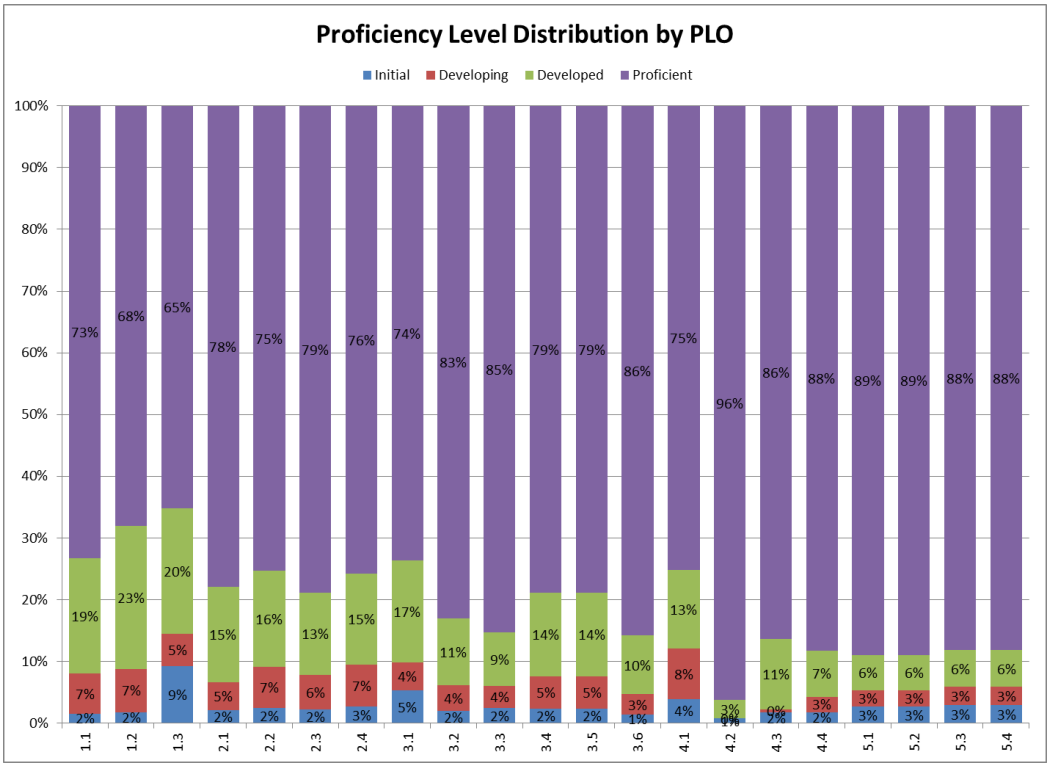
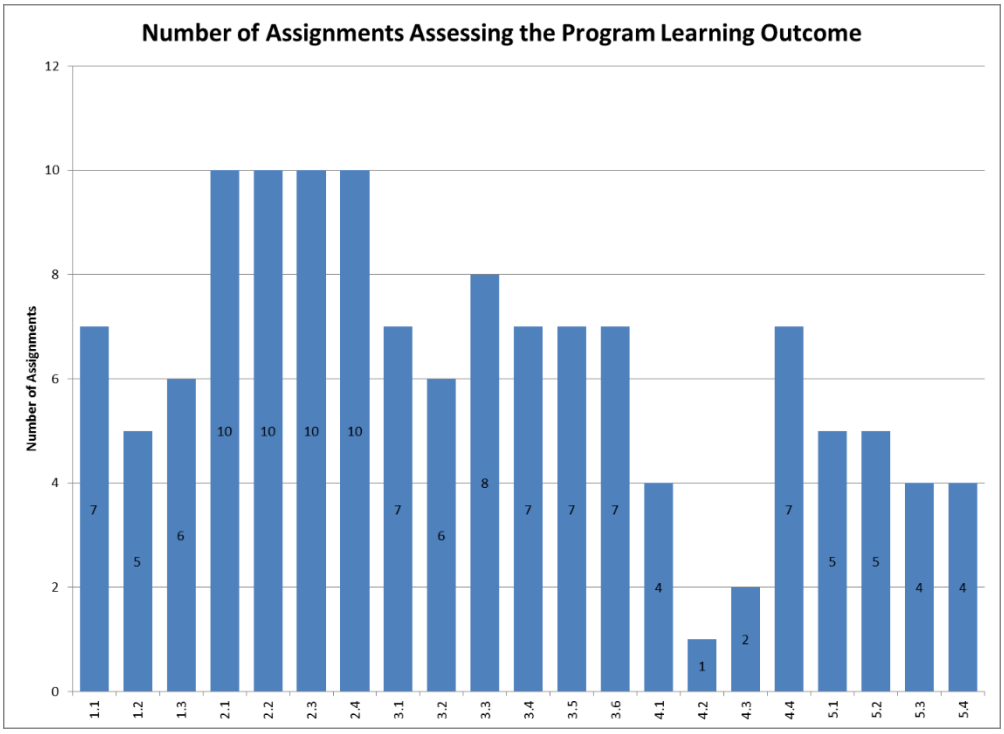
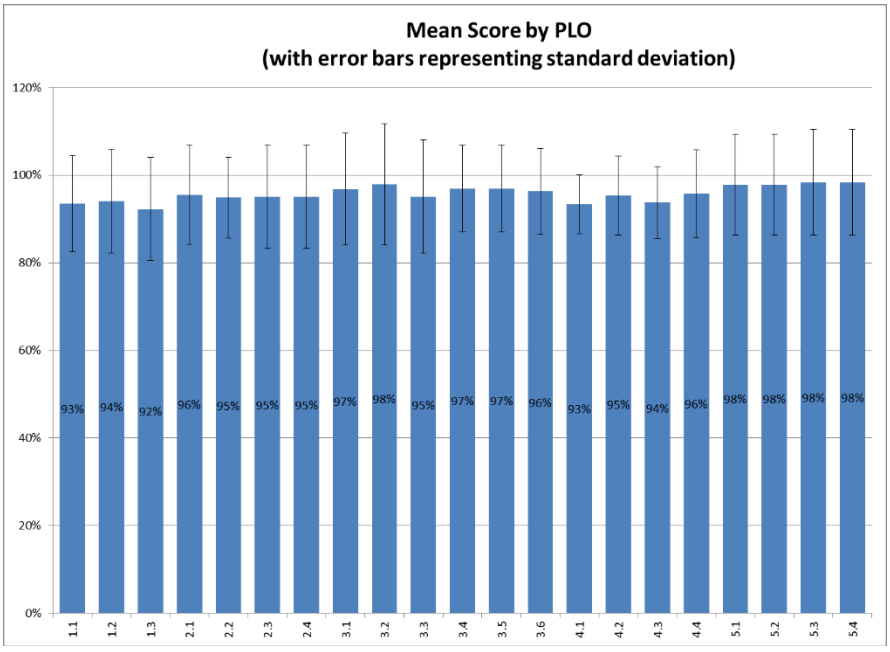
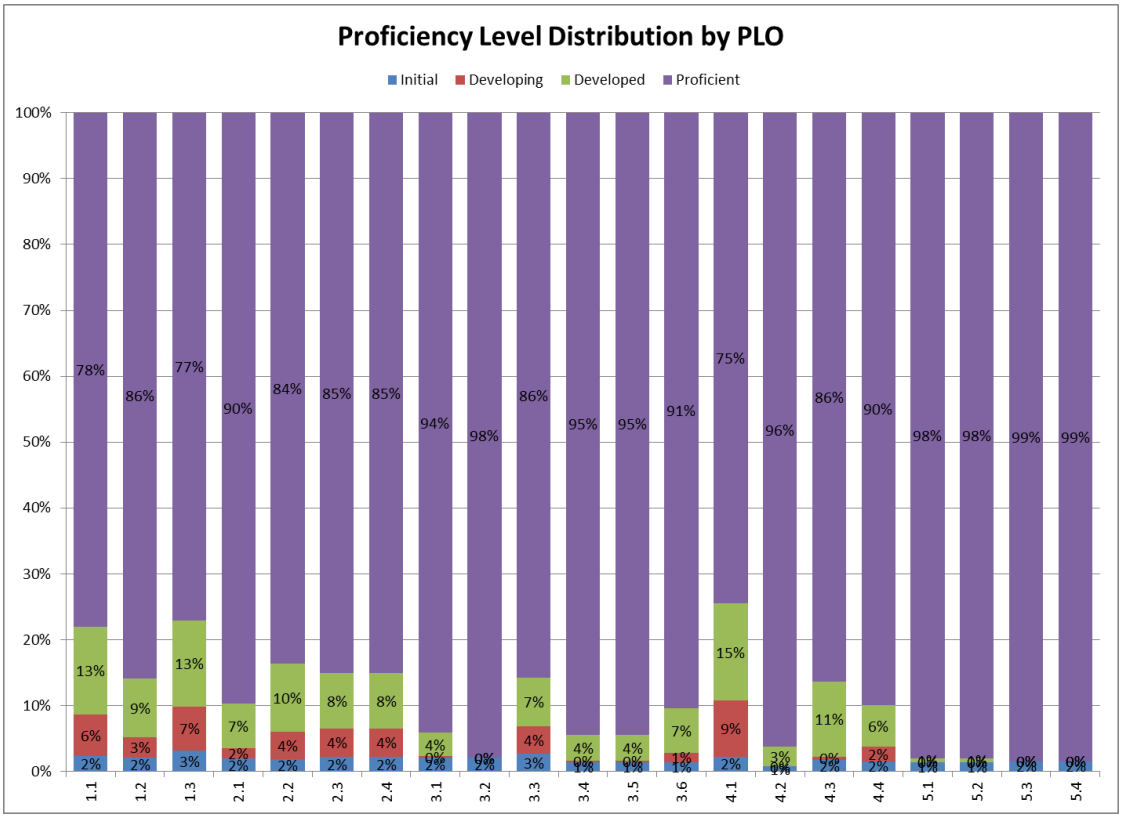

Proficiency Level Distribution by PLO
Initial
Developing
Developed
Proficient
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1.1
1.2
1.3
2.1
2.2
2.3
2.4
3.1
3.2
3.3
3.4
3.5
3.6
4.1
4.2
4.3
4.4
5.1
5.2
5.3
5.4

P3 Only Results by Program Learning Outcomes






Proficiency Level Distribution by PLO
Initial
Developing
Developed
Proficient
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1.1
1.2
1.3
2.1
2.2
2.3
2.4
3.1
3.2
3.3
3.4
3.5
3.6
4.1
4.2
4.3
4.4
5.1
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5.3
5.4

Co-Curricular Learning Outcomes

The COP already has had an excellent co-curricular program in place for some time and has documented activities on a routine basis. However, we have recently revised the Co-Curricular Learning Outcomes (CoCuLOs) to ensure alignment with the updated 2016 Standards from ACPE (see box below) and to reflect experiences offered alongside the classroom during the didactic and experiential curriculum. As well as revision of the outcomes themselves, we have made improvements in how we collect data on student co-curricular activity, and how we measure and assess outcomes. We have recently completed co-curricular rubrics aligned with ACPE 2016 Standards 3 and 4 so we can better assess outcomes; we have designed new data collection forms so that students are better able to document and demonstrate the appropriate knowledge, skills, abilities, behaviors and attitudes. We intend to implement, with support from faculty advisors, the use of CANVAS to document and evaluate students' participation in co-curricular activities as they progress through the pharmacy curriculum.

Co-Curricular Learning Outcomes

1. **Social Awareness and Cultural Sensitivity** - Students demonstrate awareness of and responsiveness to social and cultural differences by adapting behaviors appropriately and using effective interpersonal skills to better serve patients from diverse backgrounds and communities.
2. **Professionalism and Advocacy -** Students demonstrate professional behavior and effective interactions with other healthcare professionals and patients and advocate for initiatives to improve patient care, health outcomes, and practice settings in pharmacy.
3. **Self-Awareness and Learning** - Students demonstrate self-awareness through reflection and the development of appropriate plans for self-directed learning and development.
4. **Innovation/ Entrepreneurship** - Students demonstrate innovation and creativity and develop novel strategies to accomplish professional goals.
5. **Public Health and Education** - Students apply skills learned in the classroom to create and effectively deliver public health initiatives and health-related education to the community.
6. **Service and Leadership** - Students demonstrate the ability to lead and work collaboratively with others to accomplish a shared goal that improves healthcare.

CNUCOP is committed to the holistic development of its pharmacy graduates through the provision of a robust and multidimensional co-curriculum that complements and enhances curricular classroom and experiential learning. Since the March 2019 ACPE Site Visit, the College has invested considerable manpower, planning, and implementation of resources to evaluate, restructure, and enhance its co-curricular program and to ensure horizontal and vertical alignment of the enhanced co-curricular program with the Pharm.D. curriculum.

Due to the space constraints for this Interim Focused Self Study, we present our work done in this area by dividing it under the sections for Standards 3 and 4, requesting that these be read concurrently. In this section on Standard 3, we describe the specific strategies adopted by the College to 1) enhance the co-curriculum, and 2) expand the COCULO program by adoption of a knowledge and experience-based qualitative approach. We cite ten examples of how the expanded CNUCOP co-curriculum achieves learner professional development in alignment with the ACPE Standards Guidance Document. We also provide summary posters of examples of learner-centered COCULO events. In Standard 4, we detail the process for how these changes were made.

Steps Taken to Enhance the CNUCOP COCULO program. To enhance the co-curriculum, the College collaboratively developed and implemented the following six strategies:

1) Augmenting the complexity and rigor of the COCULO program Appendix 3.1
2) Increasing both the number of co-curricular activities each student must participate in annually, as well as the number of corresponding self-reflections that must be completed, while standardizing the process for COCULO event approval Appendix 3.2A
3) Enhancing the rigor and uniformity of the COCULO evaluation process, with significant consequence for incompletion
4) Taking steps to increase COCULO integration with the CNUCOP "Professional Career Development Program"
5) Bridging COCULO assessment outcomes with CNUCOP Program Learning Outcomes (PLOs) Appendix 3.2A, 3.2B, 3.2C, & 3.2D
6) Establishing repercussions for students failing to remain on-track with completing the co- curricular requirements within the required timeframe.

What resulted was a layering of the COCULO program complexity into a progressive continuum, where students advanced from participation in "knowledge-based" events to "experience-based" COCULO events. The intent was to use the "knowledge-based" COCULO events to augment classroom instruction, while the active-participation "experience and service-based" COCULO events would emphasize "hands-on" advanced learning, providing students with the opportunity to apply skills learned in the classroom directly to patient care in the community and public health settings. Appendix 3.2A A brief description of the enhanced COCULO program is provided below as an overview.

Students are required to reflect on their particular personal and professional growth and the specific learning internalized during a particular COCULO event. Following the 2019 Site Visit, the College clarified the expectations regarding the self- reflection essays that students needed to complete and have assessed by their faculty advisors. The number and rigor of self-reflections was improved through a structured process in deliberations at the CNUCOP AC in collaboration with the Office of Student Affairs and Admissions. Faculty training sessions, called "norming" sessions were held by the Director of Assessment to discuss and standardize the grading by faculty advisors of COCULO self-reflections.

Knowledge-based COCULOs. Knowledge-based COCULOs offer a "first tier" of information and immersion in topics related to the curriculum. These center on professional and personal development, and include opportunities for learners to build a strong base in career development, self-assessment, and lifelong learning that will help to improve their curricular performance. Examples include seminars and workshops on "resume", "CV", and "cover letter" writing, developed through the new Professional Career Development Program (PCDP); participation in the CNUCOP Translational Research Symposium that immerses students in inquiry-based discovery research experiences, and others. Please refer to **Table 1** below.

Experience-based COCULOs. The intent of the "experience-based" COCULO events is to provide a detailed, hands-on, immersive experience where students learn and improve by "doing". In other words, these experiences are based in the constructivist theory of education, where learners partake in active learning and acquire skills to "improve the art and science of pharmacy", which is the mission of CNUCOP. Some examples include the following: CNUCOP, in collaboration with the CNU College of Medicine, annually co- hosts the "East-West Health Fair", co-sponsored by the Sacramento Chinese Culture Foundation and California Northstate University. The East-West Health Fair is a community service event that brings together pharmacists, physicians, businesses, students, and community leaders to promote the health and wellness of our local

community in a direct interprofessional and cross-disciplinary service setting. At the East-West Health Fair CNUCOP students are actively engaged in the provision of local health services, health promotion, and education, advocacy for the profession of pharmacy, and direct patient care services including flu immunizations, diabetes and hypertension screenings, as well as mediation and disease state education, (e.g. opioid overdose and addiction prevention education).

Students also have many opportunities to organize or participate in experience-based events that test their clinical knowledge, communication skills, and/or innovative abilities through clinical skills and patient counseling competitions. The winners of these competitions at the school-level often travel to represent the college at the regional or national competition.

Please refer to **Table 1** below for other examples in a variety of subject areas for experience-based COCULOs.

Increasing the Number of Required COCULO Reflections. CNUCOP's strategy of enhancing COCULO program complexity resulted in an increase in required and assessed COCULO student self-reflections from six to eight self-reflection essays. Self-reflection essay prompts as well as the corresponding grading rubrics were modified to reflect this differentiation. While initial implementation is underway for current cohorts, starting with the CO 2024, all students will be required to complete both knowledge and experience-based events and corresponding self-reflection of the events and provide reflective essays on their learning. To summarize, eight reflective essays from six COCULO categories will be required, with a minimum of four events being categorized as experience-based events.

As stated above, OSAA oversees the COCULO program and determines the overall level of complexity of each COCULO event, including the determination of the complexity level of COCULO events. This section is continued under Standard 4 below.

Table 1 below provides ten selected examples from the ninety-five COCULO events at CNUCOP. For each example, Table 1 provides details on how that specific COCULO event is classified in one of the six internal categories listed above. Additionally, Table 1 outlines examples of how the College defines the learning objectives, learning outcomes, and evaluates the impact on learner professional and personal development through these COCULO events.

Table 1. Examples of CNUCOP COCULO Events

COCULO Event	Academic Year	Learning Objective	CNUCOP COCULO Map for Assessment[2]	Learning Outcomes	Impact
"CV and Resume Writing" Workshops ***Professional Career Development Series***	P1	• Enhancing written communication skills • Learning writing organization	Knowledge-based COCULO 3	1) develop and maintain a professional CV and resume using the electronic portfolio system *2)* combine this experience with job placement "mock interview" sessions of the *Professional Career Development Series*	Helping the student with professional communication, job application, and leadership positions
Introduction to a Hospital Pharmacy Faculty-led facilities tour	P1	Familiarizing students with hospital systems, organization, work flow and the role of the pharmacist	Knowledge-based COCULOs 3 and 4	Document understanding of hospital systems, including various health professions personnel, work environment, and organization through graded self-reflection essays	Preparing students for future hospital IPPE rotations; hospital IPE simulation curriculum
"Operation Immunization" Student-run "Flu Clinic", supervised experiences with faculty and off-site preceptors and CNUCOP alumni	P2, P3	Students learn: • To provide preventative care to local communities • Immunization techniques Interprofessional practice	Experience-based COCULOs 2 and 5	1) acquire patient communication and interaction skills 2) acquire, practice, and enhance immunization skills 3) practice patient-education regarding the importance of timely vaccination 4) document evidence of experiential learning through faculty-graded self-reflection essays	1) inculcate students with a sense of community service, social commitment, and patient advocacy 2) adaption to changing healthcare needs of the local community in response to COVID – student preparation for practice readiness
"Geriatric Fall Prevention Seminar" Co-presented by local community care clinicians	P1	Introductory session; Part I of the two-part "Geriatric and Special Populations Care" series (please see next row). Students learn: • Provision of preventative geriatric care, especially in hospice and other care situations	Knowledge-based COCULOs 1 and 5	1) demonstrate understanding of the differences in patient care for "special populations" such as geriatrics, pregnant women, and others 2) demonstrate empathy in provision of care to these special populations 3) record evidence of learning experiences through faculty graded self-reflection essays	1) interaction with community experts leading care for special populations 2) learning social accountability 3) preparing students for a community-based "service learning immersion" experience in Part-II described below

"Geriatric Fall Prevention Service Learning"	P2, P3	Part-II of the "Geriatric and Special Populations Care" series. Students learn: • To apply patient-centered intervention strategies for fall prevention.	Experience-based COCULOs 1 and 5	To apply skills learned within the curriculum and other COCULO events to recognize medications and risk factors for an accidental fall and identify patient specific interventions to reduce the likelihood of a fall	1) a service-learning immersion experience for patient-centered care of special populations 2) IPPE and APPE preparedness and practice-readiness
"The Giant Pumpkin Festival" -An annual community-based, wide-spectrum, multidisciplinary pharmacy clinical services event -Supervised experience with faculty and alumni preceptors	P2, P3	Students learn: • Epidemiology-based preventative health screening strategies and patient-education for poison control and stroke prevention. • The event includes profiling population health characteristics through for BMI, HTN, and diabetes	Experience-based COCULOs 1, 2, 5 and 6	Ability Based Outcome (ABO) training: 1) acquire practice skills in a preceptor-supervised experiential, real-world practice setting 2) practice motivational interviewing skills 3) practice active listening 4) acquire patient-counselling and education skills 5) expand awareness of social determinants of care	Transfer classroom knowledge and skills into community practice and service
"CNU East-West Health Fair" *– a flagship community-based event organized by CNU health professions students in collaboration with local health systems and professional organizations*	P2, P3	Students learn: • interprofessional education and practice skills • leadership skills to collaborate with community leaders • organizational and relationship building skills for life-long learning • provide glucose screening and diabetes education to the general public and identify patients to be referred for further evaluation by their health care provider	Experience-based COCULOs 1, 2, 5 and 6	Ability Based Outcomes (ABO): 1) demonstrate acquisition of skills for interprofessional communication, ethical practice, and roles and responsibilities per the IPEC 2016 guidelines 2) apply leadership, time-management, and organizational skills for complex community-based event planning for enhancing community health 3) demonstrate cultural sensitivity and awareness 4) demonstrate team-readiness for patient-centered care	1) improving community health in the greater Sacramento Metro Region through provision of accessible care to underserved populations including Hmong, Latinx and African American communities 2) help students identify linguistic and cultural barriers to health care and develop strategies to overcome the same 3) provide students with an opportunity to experience a real-life complex, interprofessional practice experience for IPPE and APPE readiness and life-long learning

"Budget Impact Model" A budget impact analysis workshop	P3	Students learn: • How the budget impacts managed care pharmacy • How decisions are made on formulary lists for heath care companies	Knowledge-based COCULO 3	To attain a better understanding of the formulary management process by developing a monograph, evaluating clinical and pharmacoeconomic data, and coming up with a determination for a formulary status of real medication in hypothetical health plan scenario	1) prepares students for the Academy of Managed Care Pharmacy (AMCP), national student pharmacist Pharmacy and Therapeutics Competition 2) makes students aware of the interrelationship between policy, budget, and formulary lists.
The "CNU Capitol Leadership Forum" A CNUCOP-led advocacy event for the pharmacy profession, including opportunities for effectuating meaningful change through policy development and legislative representation	P1, P2, and P3	Students learn: • The principles and practice of health policy creation • The role of the pharmacist in influencing state and federal health policy guideline formation • Communication skills with local leaders and state government in developing health care policy • How public health policy develops in response to emerging health challenges such as the COVID-19 pandemic	Experience-based COCULO 2, 5 and 6	Students develop and demonstrate the ability to: 1) identify and develop a plan for timely discussion of pharmacy advocacy-relevant topics 2) identify opportunities of growth for the profession of pharmacy at the state level, along with gaining support from local and state leaders	1) "Professional Identity Formation" – students develop a strong sense of ownership for 2) participating in the development of collaborative solutions for improving health disparities 3) student-led promotion and enhanced visibility for the profession of pharmacy 4) creating a bridge between academic pharmacy and state legislature 5) expanding and augmenting social, professional, legislative, and community-based networking opportunities

"***The Annual CNU Translational Research Symposium***" A CNUCOP-led, university-wide platform for students and faculty from the colleges of Pharmacy, Medicine, Psychology, Health Sciences, and Graduate Studies to showcase bench and SOTL research	P2, P3	Students learn: • To create and test scientific hypothesis in a laboratory or practice setting, conduct research under faculty supervision, and apply critical thinking skills • Professional presentation skills for scientific communication for different audiences including fellow students, postdoctoral fellows, and faculty	Experience-based COCULO 4	1) students demonstrate professional communication skills through poster or podium presentations 2) students develop and implement an ability to conduct scientific analysis and answer questions regarding their research work	This event provides: 1) an opportunity for students to engage in a structured, faculty-guided, traditional scientific "immersion" experience in the process of scientific inquiry and discovery 2) a platform for students to contribute knowledge to the discipline 3) networking opportunity with the scientific and research communities

Figure 2. Examples of CNUCOP COCULO Activities.

Figure 3. CNUCOP Students Organize and Participate in Co-curricular Interprofessional and Clinical Community Service Events

ii. Course outcomes: Grade distribution

Each semester a grade distribution report is routinely compiled as part of the process to evaluate and establish students' "Satisfactory Academic Progression". A presentation of the data is shared with Faculty for information and discussion. Data shown below in tables 4a and 4b and the charts which follow, are examples of data presented to Faculty last year, showing final course grades for the Academic Year 2015-2016 (data collected in 2012 is provided as a comparison).

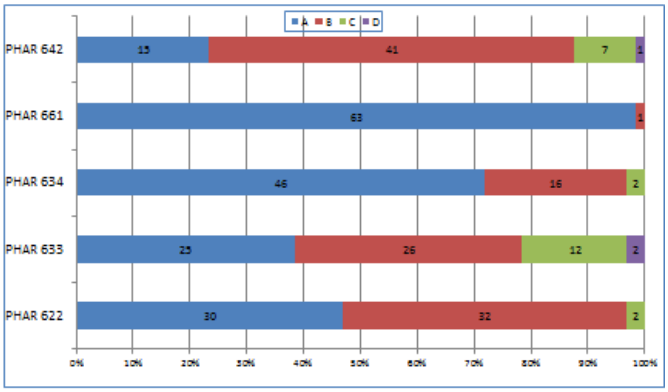
Table 4a: Didactic Courses: Grade Distribution Analysis: Fall 2015 (and Fall 2012)

	Fall 2015								Fall 2012						
Course	**A**	**B**	**C**	**D**	**W**	**F**	**Total**		**A**	**B**	**C**	**D**	**W**	**F**	**Total**
PHAR 621	28	34	3	2			67		36	57	9			1	103
PHAR 631	17	33	14	1			67		18	67	16			2	103
PHAR 632	20	42	3	2			67		21	71	10	1			103
PHAR 641	24	41	1	1			67		18	69	15	1			103
PHAR 724	41	73	7				121		27	66	10			1	104
PHAR 743	23	83	14				120		41	61	1			1	104
PHAR 757	41	71	9				122		16	75	12			1	104
PHAR 811	86	18					104		8	63	20				91
PHAR 827	67	35	2				104		22	64	5				91
PHAR 853	30	71	4				105		23	65	3				91

Table 4b: Didactic Courses: Grade Distribution Analysis: Spring 2016 (and Spring 2012)

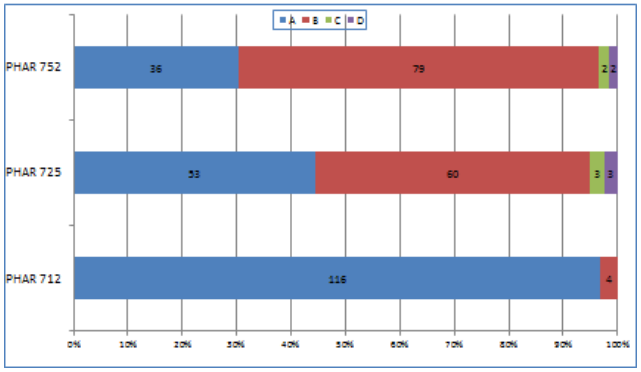
	Spring 2016								Spring 2012						
Course	**A**	**B**	**C**	**D**	**W**	**F**	**Total**		**A**	**B**	**C**	**D**	**W**	**F**	**Total**
PHAR 622	30	32	2				64		54	45	4	1			104
PHAR 633	25	26	13	1			65		42	60	3				105
PHAR 634	46	16	2				64		33	66	5				104
PHAR 642	15	41	8				64		31	73	0				104
PHAR 661	63	1					64		96	8	0				104
PHAR 712	116	4					120		70	20	1				91
PHAR 725	53	60	5	1			119		31	59	1				91
PHAR 752	36	79	3	1			120		9	57	25				91
PHAR 813	22	74	7				103		26	61	3				90
PHAR 815	94	9					103		33	56	1				91
PHAR 856	20	74	11				102		13	70	8				91
PHAR 858	73	32					105		-	-	-	-	-	-	-

Grade distribution – Spring 2016 P1 courses

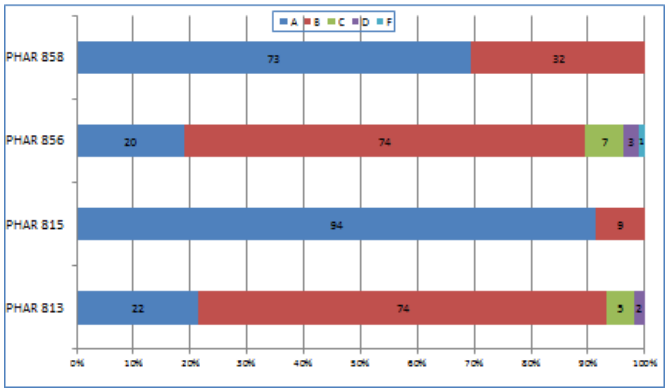


NB: These are final (ie, with team) grades (pre-remediation)

Grade distribution – Spring 2016 P2 courses



Grade distribution – Spring 2016 P3 courses



iii. Grade Distribution by Course

Grade distribution across all courses and for all years of the program to date is provided in *Appendix 14*. Given below are just a few examples, showing the grade distribution for several courses from different years of the program to illustrate what data are compiled and used in descriptive and correlational analysis of student performance.

Pharmacy courses have a unique identifier: each course has letters (PHAR) and a 3-digit course number, with the first digit representing the year (600 are first year courses, 700 are second year courses, and so on); the second number represents the semester (1 is Fall, and 2 is Spring), and the final number represents the course itself and its sequence in the curriculum; thus PHAR 611 was a first year course delivered in the Fall semester and was the first course in the sequence of Fall courses to the P1s.

When a course was moved to a different year in the program the course number is shown in brackets, signifying to which year group the course was delivered and when. Most courses have been delivered in the same year since the start of the program, but the sequencing of a few courses was changed as a result of programmatic evaluation, e.g., 'PHAR 733 – Pharmacokinetics' was delivered to the first two cohorts in the second year of the program, but moved to the first year for the Class of 2014, and has remained there ever since. Law was delivered in the second year at the beginning of the program, but moved to the P3 year in 2011-12, where it has since remained.

Occasionally, some courses were stopped altogether. For e.g., 'PHAR 826: Biotechnology & Pharmacogenomics' was no longer offered as a single course after delivery to the Class of 2015. This was in part because curriculum mapping had highlighted some redundancy in PHAR 826, so content was rationalized and relevant material dispersed across several existing didactic courses. Some content was also moved into a new skills lab (PHAR 858: Skills Lab), which the Curriculum Committee felt was necessary after feedback had been received from preceptors about students' lack of readiness for APPEs.

PHAR 611/811: Pharmacy & the Health Care System	A	B	C	D	F
2008 -2009 - 611 – *Class of 2012*	14	71	2	0	0
2009 -2010 - 611 – *Class of 2013*	23	62	5	0	0
2010 -2011	x	x	x	x	x
2011-2012	x	x	x	x	x
2012-2013 - 811 – *Class of 2014*	8	63	19	0	2
2013-2014 - 811 - *Class of 2015*	34	61	6	0	1
2014-2015 - 811 – *Class of 2016*	61	38	1	0	3
2015-2016 - 811 – *Class of 2017*	84	17	0	0	0

PHAR 633/733: Pharmacokinetics	A	B	C	D	F
2009 -2010 - 733 - *Class of 2012*	15	52	18	1	0
2010 -2011 - 733 - *Class of 2013*	41	45	3	0	0
2010 -2011 - 633 - *Class of 2014*	7	59	26	0	0
2011-2012 - 633 - *Class of 2015*	42	57	3	0	0
2012-2013 - 633 - *Class of 2016*	19	69	12	0	3
2013-2014 - 633 - *Class of 2017*	34	59	17	1	0
2014-2015 – 633 - *Class of 2018*	34	64	18	1	0
2015-2016 - 633 - *Class of 2019*	25	25	13	1	3

PHAR 634/734/834: Biostatistics & Pharmacoepidemiology	A	B	C	D	F
2010 -2011 – 634 - *Class of 2014*	78	16	0	0	0
2010 -2011 – 734 - *Class of 2013*	58	32	0	0	0
2010 -2011 – 834 - *Class of 2012*	57	28	0	0	0
2011-2012 – 634 - *Class of 2015*	33	65	4	0	0
2012-2013 – 634 - *Class of 2016*	68	31	2	0	2
2013-2014 – 634 - *Class of 2017*	43	66	2	0	0
2014-2015 – 634 - *Class of 2018*	69	45	3	0	0
2015-2016 – 634 - *Class of 2019*	46	16	2	0	3

PHAR 826: Biotechnology & Pharmacogenomics	A	B	C	D	F
2010-2011 - *Class of 2012*	22	62	0	0	0
2011-2012 - *Class of 2013*	6	75	12	0	0
2012-2013 - *Class of 2014*	16	72	1	0	3
2013-2014 - *Class of 2015*	42	54	4	0	2

PHAR 858: Skills Lab	A	B	C	D	F
2014-2015 - *Class of 2016*	59	41	0	0	3
2015-2016 - *Class of 2017*	67	32	0	0	0

Milestone and Capstone performance

The milestone examinations are administered yearly to allow students the opportunity to demonstrate that they are retaining what they have learned during their P1 and P2 years and that they are reaching a minimum level of competency as defined by the faculty. *Milestone 1* is taken at the end of the P1 year (or early P2); *Milestone 2* is taken at the end of P2 year (or early P3). They are cumulative and comprehensive examinations, consisting of 120 questions compiled by faculty, and each question is mapped, most recently using ExamSoft, to relevant courses and their learning outcomes. Questions are mostly multiple choice format. The intention is to assess overall retention of knowledge, not performance following specific focused study. Results from milestone assessments can be and have been used to identify areas where curricular improvement is needed.

Every year, the COP Assessment Committee reflects on the creation, administration, and analysis of the milestone examinations, and in a process of continuous improvement, recommends potential modifications for future assessments. Between 2019 and 2020, the Assessment Committee sought to better assess student retention of critical concepts, motivate students to review essential content areas, identify areas for improvement in the curriculum, and prepare students for future standardized examinations. As a result, the 2020 milestone examinations were moved from the end of the Spring Semester to the beginning of the Fall Semester, and a virtual study guide was created for students in the online platform used by COP. A calculations component with a 70% passing threshold was added to both milestone examinations (the passing threshold was 50% for other components), a new standardized format for question writing was introduced, and incentives for high performance (merit-based awards and bonus points in Fall Semester courses) were tied to the assessments. Per the modified process for question writing, faculty were required to review external resources that correspond to the faculty members' area of expertise, and in doing so, identify content areas that may need to be expanded in the faculty members' courses. Questions written by faculty were peer-reviewed to help ensure standardization of the question formats and to provide constructive feedback concerning optimal question writing.

During the 2020 – 2021 academic year, the Assessment Committee reflected on the success of the 2020 milestone examinations and proposed several minor adjustments to further optimize the utility of the assessments. Administering the 2020 milestone examinations was logistically difficult due to the COVID-19 pandemic, and low performing students were required to simultaneously remediate milestone components and participate in the Fall Semester courses of 2020. In response, the timing of the 2021 milestone examinations was moved from the beginning of the Fall Semester to the middle of the summer, which allowed low performing students to complete their remediations prior to the beginning of the Fall Semester of 2021. The format of the milestone examinations was also changed to a virtual assessment that was administered with two-device proctoring to ensure academic integrity. Only minor changes to the milestone examinations were

necessary in 2022 and included the use of case-based questions that integrated concepts from multiple courses. To increase student proficiency with pharmaceutical calculations, a calculations component was also added to the P2 milestone examination in 2022 with a passing threshold of 80% (the calculations passing threshold for P1 students remained at 70%).

At the time of the last program review students met with their advisors to obtain their milestone scores; academic alerts were issued to each student for each section/topic that the student did not score at least 70%, and students were required to remediate those topics or sections until faculty were assured they had achieved a foundational understanding of the material. P3 students who did not successfully remediate were not allowed to begin their APPE rotation until successful completion of remediation. A Milestone Committee was formed in 2010 to guide compilation of the exams and to evaluate the outcomes, but faculty who oversaw this process are no longer with the College, resulting in some loss of data and information. More recent and current practice is that students are emailed their personal milestone scores, broken down by topic, from the Assessment Director. This is then followed by an in class presentation providing an overview of the results with suggestions about how to improve on any weaknesses; students are currently not required to remediate.

In academic year 2019-2020, CNUCOP further enhanced the annual end-of-year summative, cumulative, comprehensive examinations called "Milestone Exams" for the P1 and P2 students. P3s received an extensive PCOA review and an internal PCOA preparation examination, especially in the area of pharmaceutical calculations for the P1 Milestone, and advanced pharmaceutical calculations integrated into patient case scenarios for the P2 Milestone. Additionally, beginning in AY 2019-2020, students must earn a "Calculations Certificate" to demonstrate adequate pre-IPPE competency.

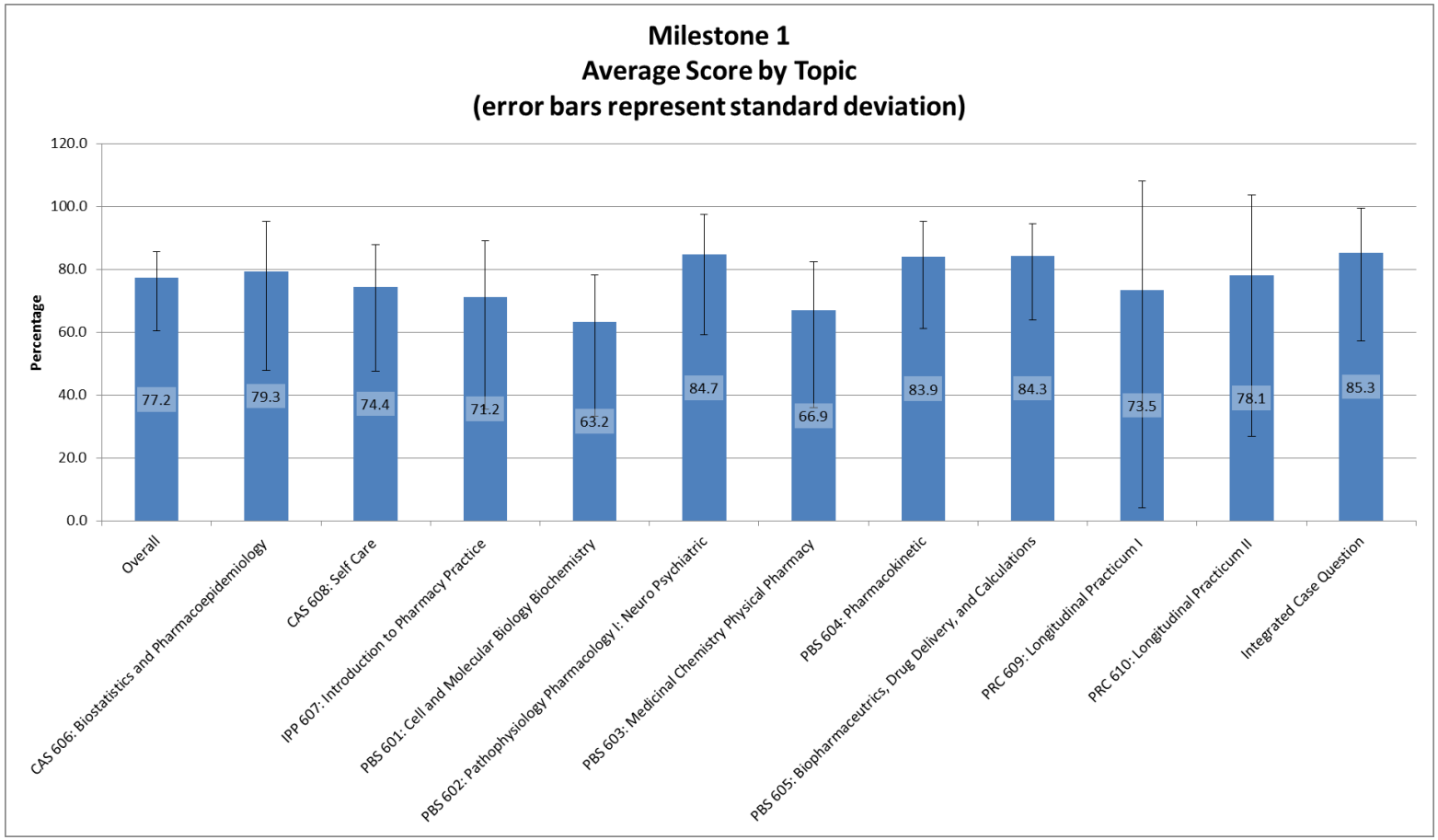
The *Capstone* is taken at the end of the P3 year, and until 2016 questions were compiled by faculty. In 2016 the Capstone was replaced by the PCOA for the Class of 2017. Students are also assessed by an external company in their P4 year following a 5-day board review course. The PCOA examination was a national standardized examination that was removed from being a requirement by the Accreditation Council for Pharmacy Education in 2022. What, if any, examination will replace this at the national level is still being decided. The CNUCOP Curriculum Committee has collaborated with the Assessment Committee to create in-house assessment for our third year students and, at the time of writing this report, multiple options were being weighed.

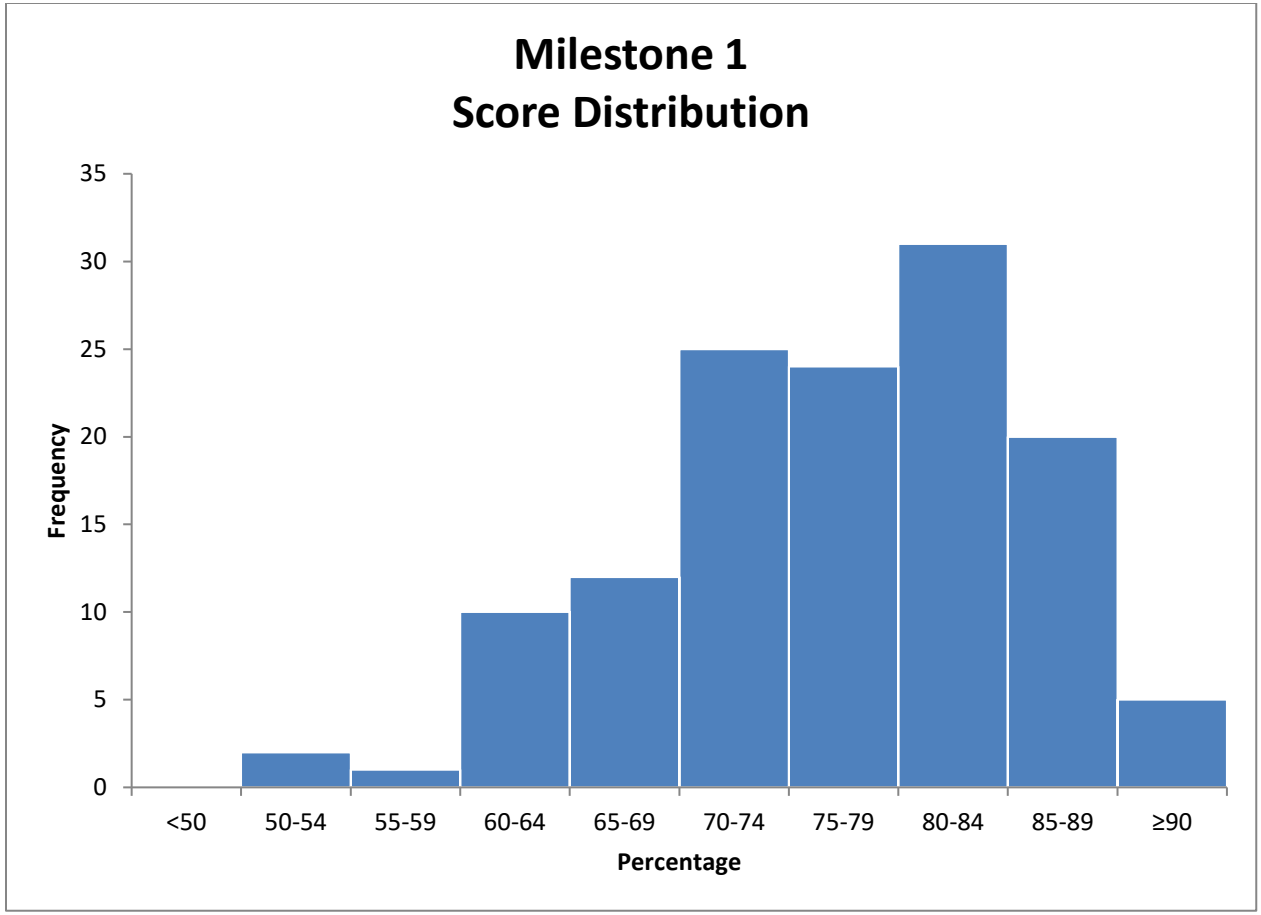
Table below outlines student readiness process implemented by the college to prepare students for clinical rotations. Includes milestone exams

for P1 and P2 students. Students must achieve sufficient knowledge of math calculations to obtain certificate of readiness (highlighted in purple).

A. Milestone Exams

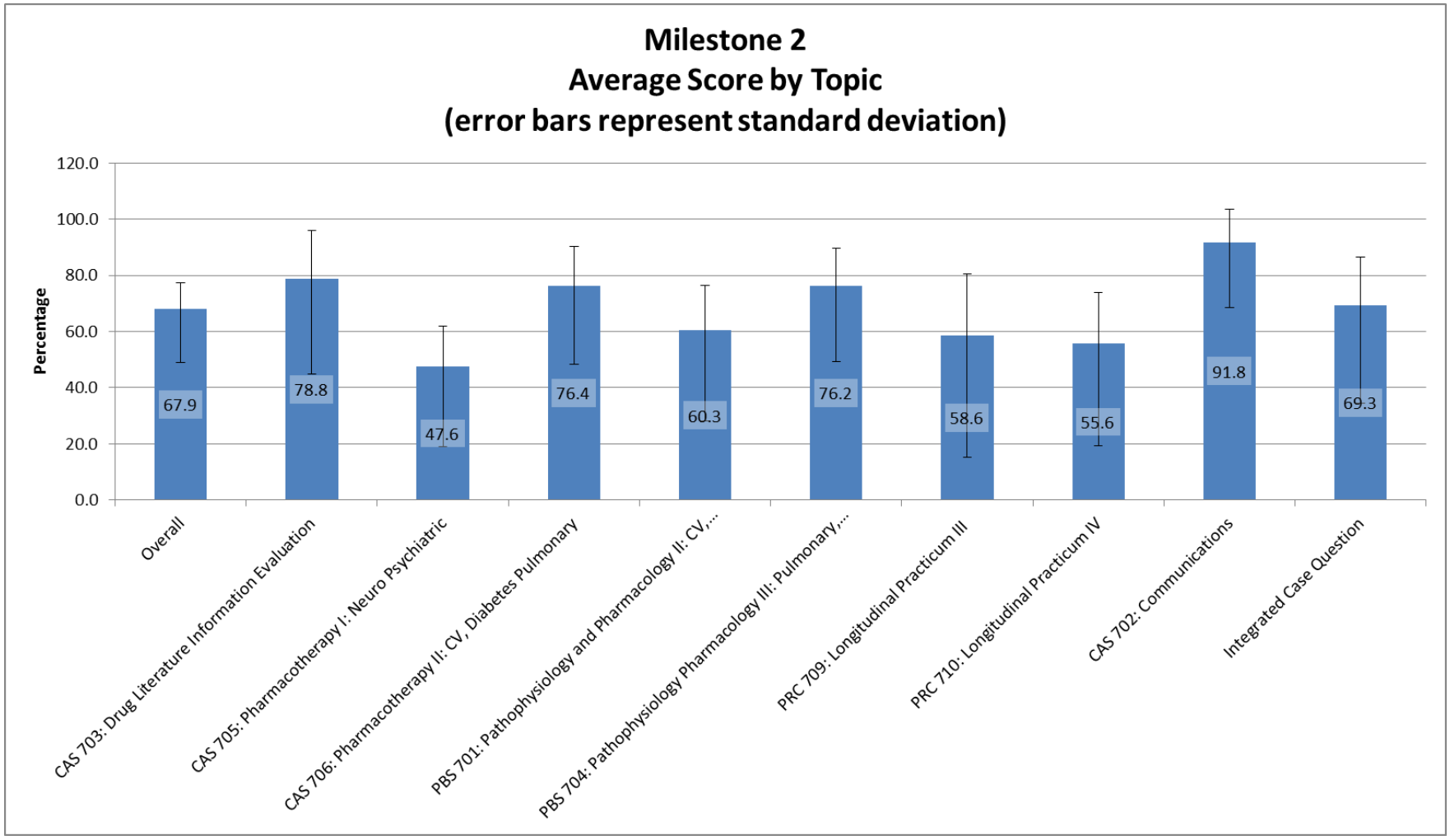
	Class of 2021 Milestone (P1 Milestone)
Total number of student taking the Exam	130
Number of students scoring above the mean	68
Number of student scoring below 50%	0
Number of student scoring less than 2SD below the mean	4
Number of students requiring remediation	0
Average	77.2%
Median	77.8%
Min	53.1%
Max	94.4%
Standard Deviation	8.4%
2SD	16.9%
Mean-2SD	60.3%

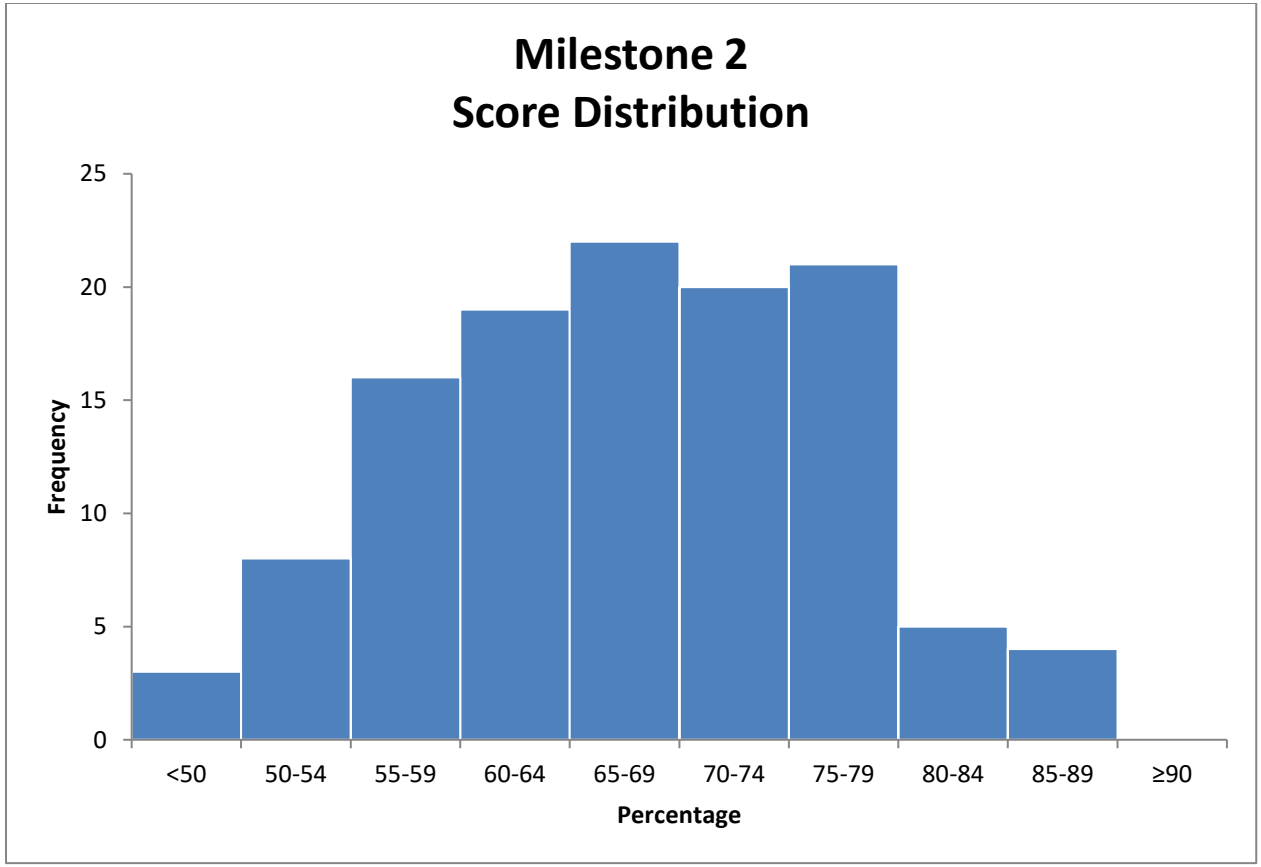

Milestone 1
Average Score by Topic
(error bars represent standard deviation)
Percentage
120.0
100.0
80.0
60.0
40.0
20.0
0.0
77.2
79.3
74.4
71.2
63.2
84.7
66.9
83.9
84.3
73.5
78.1
85.3
Overall
CAS 606: Biostatistics and Pharmacoepidemiology
CAS 608: Self Care
IPP 607: Introduction to Pharmacy Practice
PBS 601: Cell and Molecular Biology Biochemistry
PBS 602: Pathophysiology Pharmacology I: Neuro Psychiatric
PBS 603: Medicinal Chemistry Physical Pharmacy
PBS 604: Pharmacokinetic
PBS 605: Biopharmaceutrics, Drug Delivery, and Calculations
PRC 609: Longitudinal Practicum I
PRC 610: Longitudinal Practicum II
Integrated Case Question


Milestone 1
Score Distribution
Frequency
35
30
25
20
15
10
5
0
<50
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
≥90
Percentage

Class of 2020 Milestone
(P2 Milestone)

Total number of student taking the Exam	118
Number of students scoring above the mean	66
Number of student scoring below 50%	3
Number of student scoring less than 2SD below the mean	1
Number of students requiring remediation	1
Average	67.9%
Median	68.9%
Min	43.7%
Max	87.4%
Standard Deviation	9.5%
2SD	19.0%
Mean-2SD	48.9%


Milestone 2
Average Score by Topic
(error bars represent standard deviation)
Percentage
120.0
100.0
80.0
60.0
40.0
20.0
0.0
67.9
78.8
47.6
76.4
60.3
76.2
58.6
55.6
91.8
69.3
Overall
CAS 703: Drug Literature Information Evaluation
CAS 705: Pharmacotherapy I: Neuro Psychiatric
CAS 706: Pharmacotherapy II: CV, Diabetes Pulmonary
PBS 701: Pathophysiology and Pharmacology II: CV,...
PBS 704: Pathophysiology Pharmacology III: Pulmonary,...
PRC 709: Longitudinal Practicum III
PRC 710: Longitudinal Practicum IV
CAS 702: Communications
Integrated Case Question


Milestone 2
Score Distribution
Frequency
25
20
15
10
5
0
<50
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
≥90
Percentage

Standardized Action Plan Form for Addressing the Results of the 2017-2018 Milestone Exams

1. Attach the report to be addressed by this action plan

2. Copy of the action plan from the previous year:

- Making Milestone 1 and Milestone 2 transformed to "High-Stakes" assessments by possible incorporation into the Practicum Courses.

3. Account of items in the previous year's action plan that have been implemented:

- Milestone exams are now considered high-stakes assessments that require remediation to progress through the curriculum, but have not been incorporated within the practicum

4. Other initiatives/changes that may have impacted on the results of the current report:

- Milestone are administered at the end of spring final exam period to allow time for remediation during the summer
- If the student scored 2 standard deviations below the milestone average and less than 50% of the total grade they will have to remediate. [Both conditions are required for remediation]. The remediation will be in the whole exam.
- To encourage and incentivize the students' participation and performance in the milestones the students will be granted extra percentage points added to their individual grade of their pre-chosen spring course. The maximum incentive points are 4%: 2% if a student scores above average in the sub topic area of milestone related to the pre-chosen course and 2% if they score above average in the total milestone grade. Points are added to only one pre-chosen course.
- Integrated questions have been added to the exams

5. Analysis of the results of the report:
    a. General summary of the data provided in the report
    - P1 Milestone:
        - 130 students took the exam, with a mean score of 77.2%, 0 students scoring below 50%, 4 students scoring two standard deviations below the mean, and 0 requiring remediation.
        - Distribution based on the histogram appears appropriate with a moderate negative skew
        - Lowest performance were questions relating to Cell and Molecular Biology and Medicinal Chemistry, both of which are taught in the fall
    - P2 Milestone:
        - 118 students took the exam, with a mean score of 67.9%, 3 students scoring below 50%, 1 student scoring two standard deviations below the mean, and 1 requiring remediation.
        - Distribution based on the histogram appears appropriate but few students scoring above 80%
        - Lowest performance were questions relating to Pharmacotherapy I (Neuro/Psych)

- Low performance in the practicum related questions

b. Trends from previous years, if applicable

- During the 2016-2017 academic year the average score where 53% for the P1 milestone, and 54% for the P2 Milestone.

c. Specific elements /outcomes of the results that may have been impacted by various changes, including initiatives described in the action plan of a previous year
   - Overall improvement in student performance

d. Weaknesses that should be addressed
   - Discrepancy between questions covering fall courses and spring courses. Spring course questions do not necessarily measure retention in the same manner as the questions covering fall courses.
   - Better refinement of the utility of the Milestone exams

6. Action plan for the next year that addresses the results of the report (the action plan should ideally include a tentative timeline of when the initiatives/changes are expected to be implemented):
   - Item analysis was emailed to each individual course coordinators relating to the questions related to the corresponding course.
   - Modify curriculum committee course action plan to prompt course coordinators to reflect on the item analysis of the milestone exam questions
   - Reevaluate the inclusion of questions based on the Practicum Courses
   - Focus on refining the questions of the milestone exams with considering the process of making curricular changes in the longterm.

7. Items requiring referral to other offices/personnel:
   - Assessment committee to revisit the timing of the exam:
     - Options:
       - 1. Leave as is take exam in the spring with remediation in the summer
       - 2. Exam taken in the beginning of the fall of the subsequent year and remediate in the winter, with incentives to be discussed later
       - 3. Exam take and the end of the fall of the subsequent year and remediate in the winter with incentives to be discussed later
   - Assessment committee to discuss the level of rigor and possible question oversight working group or possible standardized question banks
     - To discuss next meeting
   - Full faculty to discuss and/or approve bonus scoring system (team vs. individual grades vs. new bonus category)
     - Discuss next meeting

2017-2018 CAPSTONE EXAM (NAPLEX REVIEW)

1. **Attach the report to be addressed by this action plan**

2. **Copy of the action plan from the previous year:**

   Not applicable since no action plan was completed last year.

3. **Account of items in the previous year's action plan that have been implemented:**

   Not applicable since no action plan was completed last year.

4. **Other initiatives/changes that may have impacted on the results of the current report:**

- Capstone Exam Comparison of Percentage Correct for Class of 2015 to Class of 2018: noted performances of Calculation (14.45%) was the lowest for the Class of 2019. Antibiotics (60.92%) was the highest for the Class of 2018.
- GI (22.05%) was the lowest for the Class of 2018.
- Musculoskeletal (17%) was the lowest for the Class of 2015.
- Proctored Class of 2019 students took the same exact Capstone Exam as the Class of 2018.
- Overall, the Class of 2018 performed noticeably better as shown in **Figure 3** except for the following categories with no noticeable differences observed: Biostatistics, Compounding, and HIV/AIDS.
- The Class of 2018 Capstone Exam time period occurred after students completed at least 4 APPE rotations.
- The Class of 2019 Capstone Exam time period occurred immediately after Final Exams week.

  A snapshot of the Class of 2018 provided in this report shows an Excel Trend Line of Percentage Scored Versus Active Time Spent taking a 2 hour pre-Naplex Mock Exam by P4 students as shown in **Figure 4**. Here we can see that there are students who did not utilize the full 2 hour opportunity to take this exam

5. **Analysis of the results of the report:**

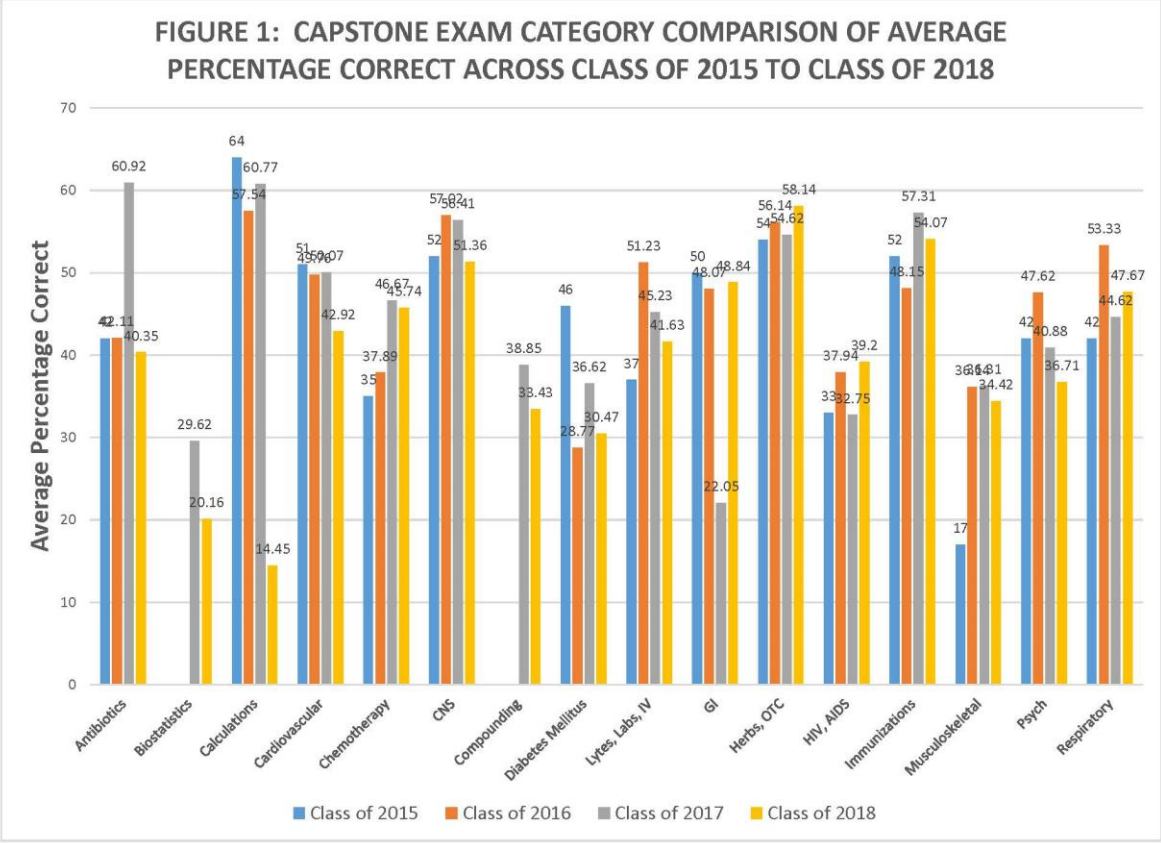
   a. **General summary of the data provided in the report**

DATA:
In addition to the Capstone Exam data captured this year for the Class of 2018 and Class of 2019, data of P4 Capstone Exam results per category from prior years have been located from records kept by our previous Senior Associate Dean of Academic Affairs. In particular, these performance results are for the Class of 2015, 2016, and 2017 and all of this is summarized in the table below:

	Class of 2015	**Class of 2016**	**Class of 2017**	**Class of 2018**	**Class of 2019**
N	76	57	65	86	67
Antibiotics	42	42.11	60.92	40.35	32.54
Biostatistics			29.62	20.16	21.39
Calculations	64	57.54	60.77	14.45	8.32
Cardiovascular	51	49.76	50.07	42.92	20.22
Chemotherapy	35	37.89	46.67	45.74	32.84
CNS	52	57.02	56.41	51.36	34.58

Compounding			38.85	33.43	33.96
Diabetes Mellitus	46	28.77	36.62	30.47	24.48
Lytes, Labs, IV	37	51.23	45.23	41.63	25.67
GI	50	48.07	22.05	48.84	29.85
Herbs, OTC	54	56.14	54.62	58.14	37.31
HIV, AIDS	33	37.94	32.75	39.2	41.15
Immunizations	52	48.15	57.31	54.07	51.49
Musculoskeletal	17	36.14	36.31	34.42	20.3
Psych	42	47.62	40.88	36.71	26.01
Respiratory	42	53.33	44.62	47.67	24.48
Average % Correct	44.07	46.55	44.61	39.97	29.04

b. Trends from previous years, if applicable



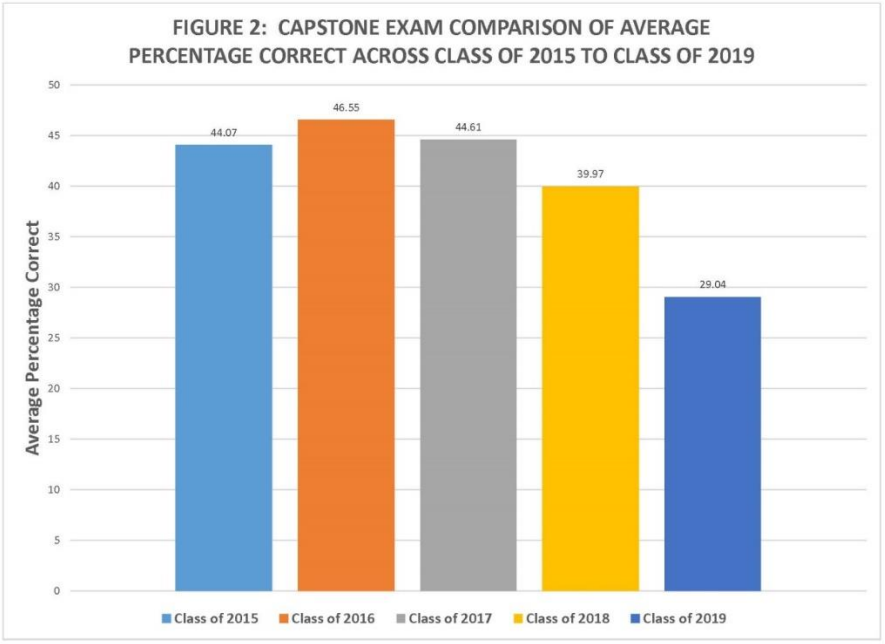


FIGURE 2: CAPSTONE EXAM COMPARISON OF AVERAGE PERCENTAGE CORRECT ACROSS CLASS OF 2015 TO CLASS OF 2019
Average Percentage Correct
50
45
40
35
30
25
20
15
10
5
0
44.07
46.55
44.61
39.97
29.04
Class of 2015
Class of 2016
Class of 2017
Class of 2018
Class of 2019

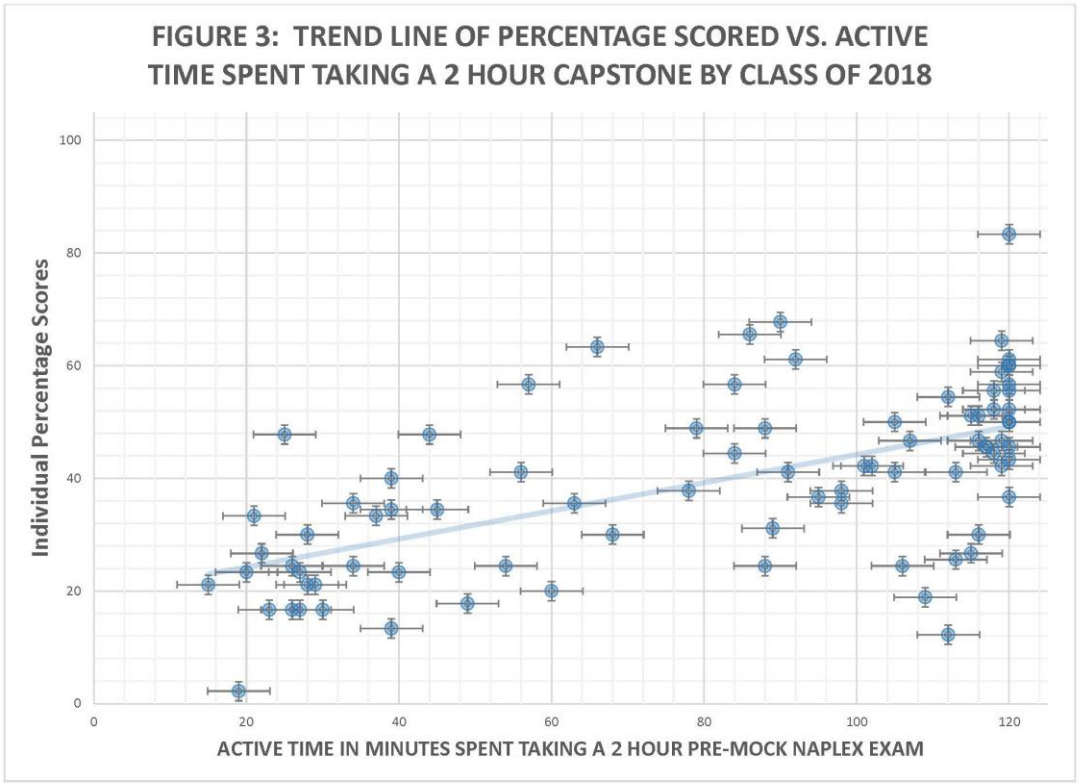


FIGURE 3: TREND LINE OF PERCENTAGE SCORED VS. ACTIVE TIME SPENT TAKING A 2 HOUR CAPSTONE BY CLASS OF 2018
Individual Percentage Scores
100
80
60
40
20
0
0
20
40
60
80
100
120
ACTIVE TIME IN MINUTES SPENT TAKING A 2 HOUR PRE-MOCK NAPLEX EXAM

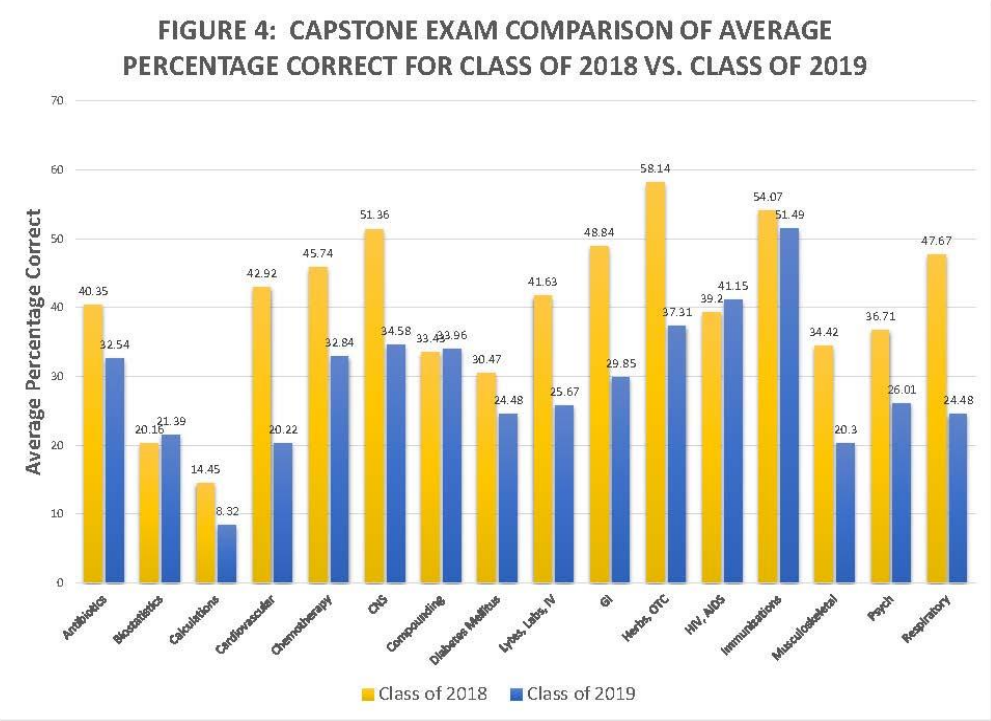


FIGURE 4: CAPSTONE EXAM COMPARISON OF AVERAGE PERCENTAGE CORRECT FOR CLASS OF 2018 VS. CLASS OF 2019
Average Percentage Correct
70
60
50
40
30
20
10
0
40.35
32.54
20.16
21.39
14.45
8.32
42.92
20.22
45.74
32.84
51.36
34.58
33.43
33.96
30.47
24.48
41.63
25.67
48.84
29.85
58.14
37.31
39.2
41.15
54.07
51.49
34.42
20.3
36.71
26.01
47.67
24.48
Antibiotics
Biostatistics
Calculations
Cardiovascular
Chemotherapy
CNS
Compounding
Diabetes Mellitus
Lytes, Labs, IV
GI
Herbs, OTC
HIV, AIDS
Immunizations
Musculoskeletal
Psych
Respiratory
Class of 2018
Class of 2019

Corelational analysis shows that the overall admission GPA for the CO 2012 is not a good predictor of success of GPA performance in college or in the two milestone exams. However, P1 GPA and P2 GPA are moderate to strong predictors of success on the two milestones, suggesting that students who do well in class are the most likely to retain information. The analysis shows also that Milestone 1 performance is a strong predictor of success on the Milestone 2.

Table 5c: Class of 2018 milestone correlational analysis

	Adm GPA	P1 GPA	P2 GPA	Milestone 1	Milestone 2
Adm GPA	1.00				
P1 GPA	0.13	1.00			
P2 GPA	0.33	0.95	1.00		
Milestone 1	0.26	0.64	0.66	1.00	
Milestone 2	0.17	0.62	0.69	0.74	1.00

Pearson correlation; dark blue shading = significant at 0.01 (2 tailed)

Admissions GPA for this cohort is a significant but weak predictor of the P2 GPA and Milestone 1 exam. P1 GPA and P2 GPA are moderate to strong predictors of success on the two Milestones, suggesting again that students who do well in class are the most likely to retain information. For this cohort, as in the first cohort (CO 2012 above), performance on the Milestone 1 assessment is again a strong predictor of success on the Milestone 2.

The following table shows correlations between P1 GPA and performance on all P1 courses for the CO 2018 and students' performance on the corresponding sections on the Milestone exam. It should be expected that performance on a given P1 course should correlate with performance on the milestone questions which correspond to that course.

Table 5d: CO 2018: Correlation Analysis of Milestone 1 and P1 courses

Milestone/ GPA	P1 GPA	M1 - 621	M1 - 622	M1 - 631	M1 - 632	M1 - 633	M1 - 634	M1 - 641	M1 - 642	M1 - 661
P1 GPA	1.00	0.48	0.44	0.34	0.43	0.48	0.31	0.31	0.17	0.22
PHAR 621	0.77	0.38	0.25	0.18	0.28	0.30	0.17	0.12	0.00	0.03
PHAR 622	0.77	0.45	0.52	0.36	0.30	0.45	0.24	0.23	0.19	0.17
PHAR 631	0.74	0.28	0.39	0.33	0.22	0.25	0.10	0.16	0.09	0.24
PHAR 632	0.72	0.40	0.19	0.25	0.42	0.31	0.19	0.33	0.03	0.11
PHAR 633	0.83	0.37	0.37	0.23	0.36	0.45	0.31	0.25	0.24	0.11
PHAR 634	0.74	0.34	0.23	0.20	0.35	0.36	0.43	0.26	0.08	0.16
PHAR 641	0.68	0.29	0.29	0.23	0.21	0.26	0.18	0.25	0.22	0.35
PHAR 642	0.50	0.19	0.39	0.21	0.36	0.38	0.30	0.29	0.10	0.26
PHAR 661	0.53	0.19	0.07	0.07	0.29	0.29	0.17	0.17	0.27	0.22

For the class of 2018 P1 GPA is a strong to very strong predictor for how well students do in their P1 milestone, suggesting good retention of material. With the exception of PHAR 642 (Self Care), which has no correlation, most courses have a weak to moderate correlation with their corresponding sections on the Milestone.

Table 5e: CO 2019: Correlation Analysis of Milestone 1 and P1 courses

Milestone/ GPA	P1 GPA	M1 - 621	M1 - 622	M1 – 631	M1 - 632	M1 - 633	M1 - 634	M1 - 641	M1 - 642	M1 - 661
P1 GPA	1.00	0.33	0.44	0.35	0.40	0.52	0.34	0.47	0.28	0.27
PHAR 621	0.85	0.40	0.26	0.35	0.34	0.48	0.41	0.39	0.32	0.24
PHAR 622	0.83	0.29	0.38	0.31	0.39	0.34	0.11	0.41	0.14	0.27
PHAR 631	0.83	0.22	0.38	0.40	0.35	0.40	0.12	0.44	0.18	0.27
PHAR 632	0.77	0.24	0.28	0.25	0.44	0.53	0.34	0.34	0.33	0.22
PHAR 633	0.84	0.25	0.43	0.24	0.34	0.46	0.38	0.35	0.28	0.10
PHAR 634	0.68	0.17	0.45	0.13	0.16	0.31	0.44	0.25	0.23	0.15
PHAR 641	0.73	0.30	0.18	0.32	0.18	0.32	0.14	0.39	0.23	0.25
PHAR 642	0.78	0.23	0.40	0.14	0.21	0.51	0.26	0.34	0.08	0.24
PHAR 661	0.13	0.03	0.06	0.02	-0.16	-0.06	0.03	0.25	-0.07	-0.02

Pearson correlation; dark blue shading = significant at 0.01 (2 tailed)

For the class of 2019 P1 GPA is a strong to very strong predictor for how well students do in the P1 milestone, suggesting good retention of material; however GPA has no correlation with PHAR 661. Most courses have a weak to moderate correlation with their corresponding sections on the Milestone, while PHAR 642 (Self Care) and PHAR 661 (Introduction to Pharmacy Practice) has no correlation at all with its corresponding section on the milestone; these two courses have been re-sequenced as a result of the implementation of Curriculum 3.0, so the course coordinators will revise their milestone questions before the next milestone takes place to ensure they are representative of the course concepts.

Although some caution needs to be exercised because of the lack of complete data sets, the analysis above does indicate that students are retaining knowledge, and most courses are assessing the concepts delivered in class. Thus the College will continue to administer the Milestone assessments. However, correlations with some courses are weak to non-existent, and the low average class scores overall suggest the students may not be taking the assessment seriously, or that there is a real decline in student performance. Evidence from published research which has examined the use and effectiveness of milestone assessments supports this conclusion, since findings are that students perform better on higher stakes exams, and negative incentives, (such as remediation), and particularly high-stakes negative incentives, (such as failure to progress in the curriculum), are more effective in relation to student performance than positive incentives (such as bonus points).

The analysis and results here were presented to faculty for discussion, resulting in agreement that the Assessment and Curriculum Committees will be asked to reexamine the College's overall milestone strategy, including consideration of re-introducing remediation for those students who do not reach the minimum levels of competency, and what the process would

involve. Through the Assessment Committee course instructors whose courses do not correlate with milestone results have been asked to review and revise milestone questions, and monitoring of this will continue annually.

T

The NAPLEX assessment

The NAPLEX, or North American Pharmacist Licensure Examination, measures a candidate's knowledge of the practice of pharmacy. It is one component of the licensure process and is used by the state boards of pharmacy as part of their assessment of a candidate's competence to practice as a pharmacist. It is necessary to pass (75% or greater) the four and a quarter hour exam, consisting of 185 questions, to be able to work as a pharmacist.

Exam takers in the first four cohorts that have passed through CNSU (2012 to 2015) were assessed in three competency areas:

- ability to assess pharmacotherapy to assure safe and effective therapeutic outcomes
- ability to assess safe and accurate methods to prepare and dispense medications
- ability to assess, recommend, and provide health care information to promote public health

A variety of self-directed learning modules were either developed or enhanced to boost student confidence and ensure APPE readiness. Two examples are listed below.

Continuous Quality Improvement and Development

Prior to 2010, the College of Pharmacy administered a high stakes CAPSTONE examination at the end of the fourth year of the program that represented the final assessment in a sequence of three examinations. Each examination contained questions provided by the company PASS NAPLEX Now that were intended to resemble multiple choice questions students may encounter on their board examinations. Prior to the summative examination, two practice examinations were administered at the end of the third year of the program and during February of the fourth year, respectively. Aggregated student performance consistently improved as students progressed from their first practice examination to their final CAPSTONE examination, which encouragingly suggested that exposure to the assessments was improving the students' ability to succeed on standardized examinations.

In 2019, a working group proposed modifications to the CAPSTONE examination process, and the recommendations from the working group were discussed by the COP Assessment Committee. After deliberation, the Assessment Committee recommended that a low stakes assessment be administered to third-year students prior to the Pass NAPLEX Now review session that is conducted at the end of the academic year. The assessment administered to third-year students was designated as the "P3 Readiness Examination" and was intended to generate individualized score reports that identified content areas that require review during the Pass NAPLEX Now seminar.

In addition to modifying the first assessment in the CAPSTONE examination sequence, the second and third assessment were modified by the 2019 -2020 COP Assessment Committee as well. The second assessment was renamed the "Pre-Qualifying Examination," and students that performed well on the examination were excused from a faculty led review session that was held at the end of the 2020 academic year. The final examination in the

CAPSTONE sequence was termed the "Qualifying Exam," and every student was required to successfully pass the Qualifying Examination in 2020. Students that did not pass the Qualifying Examination were required to develop a remediation plan with the Office of Academic Affairs.

In the Fall of 2020, the National Association of Boards of Pharmacy announced that the format of the NAPLEX and the reporting of student performance will change beginning in 2021. In response to the notification, the COP Assessment Committee developed a practice examination in December of 2020 that mimicked the new NAPLEX format, and the subsequent Pre-Qualifying Examination and Qualifying Examinations contained questions that were mapped to the new NAPLEX format. Students received individualized reports after each assessment that identified competency areas that require further review prior to completing the NAPLEX examination.

After reviewing feedback from multiple stakeholders, the COP Assessment Committee and Curriculum Committee worked together to streamline the Qualifying Exam Process in the wake of the modified NAPLEX format. Among other minor modifications, the assessments in the Qualifying Exam Series were incorporated into courses (APP 910 and APP 911) to incentivize student performance by tying the examination scores to the course grades. Incorporating the assessments into courses also simplified the remediation process for low performing students by abiding by the processes that were specified in the course syllabi instead of relying on the Office of Academic Affairs to enforce remediation policies that were not associated with a specific course.

- **PASSNAPLEXNOW Virtual Review Sessions**. Virtual reviews of disease states, pharmacy and therapeutics topics were added for P3 students via a national board exam vendor (PASS**NAPLEX**NOW).

- **Calculations-Based Self-Directed Learning Module.** New longitudinal, self- directed learning modules were added in the area of "calculations". Additionally, the College created a "Certificate in Calculations" program to boost student self-confidence and morale by helping students feel more prepared for rotations. Planning is underway for implementing a "Basic Sterile Compounding Certificate" but was delayed due to COVID- 19 and the College's decision to support our community healthcare workers through the donation of PPE for patient care, as well as Top 200 Drugs. (See Standard 12 for enhancements to Experiential Preparation.)

- Ensure safe and effective pharmacotherapy and health outcomes
- Safe and accurate preparation, compounding, dispensing and administration of medications and provision of healthcare products

Overall pass rates are reported by school, state and nationally, showing how many students reached or exceeded the minimum necessary to practice pharmacy (pass rate = 75%); only the overall composite score is used to determine pass/fail. However, a mean total scaled score (0 to 150), and 'Competency Area' scores are reported - on a scale (6 to 18), where a score of 6 is the lowest possible score and 18 is the highest.

Individualized student data can be used for correlational analysis, however, not all students give permission to have their individualized data released to the College – for example, we know from the 2012 annual summary report that 72 of the Class of 2012 took the test during the main 2nd trimester (1 failed); but only 68 students released their data to the College.

Five COP classes have taken the NAPLEX to date (2012, 2013, 2014, 2015, & 2016). The College so far has individualized data for four classes (2012, 2013, 2014, and 2015); individualized data for Class of 2016 will be available some time during January 2017. Analysis of NAPLEX performance follows after a brief description of the College's NAPLEX preparation strategy, below.

iv. COP's NAPLEX and CPJE preparation strategy

For the classes of 2012 through 2015 P4 students took part in weekly summits throughout their fourth year to help prepare them for the NAPLEX – the summits provided the students with an opportunity to practice calculations, and to hone their therapeutic knowledge in major disease areas. These stopped for the P4 students in the Class of 2016 because of a re-organization that took place within the Experiential Education Department.

The weekly summits were replaced in 2016 by the 'Longitudinal Pharmacy Practice Knowledge Exam' (LPPK) which accounts for 30% of the overall APPE mark. For each APPE block students take an open book on-line exam consisting of 100 NAPLEX-type questions prepared by the pharmacy residents and faculty and cover the following areas:

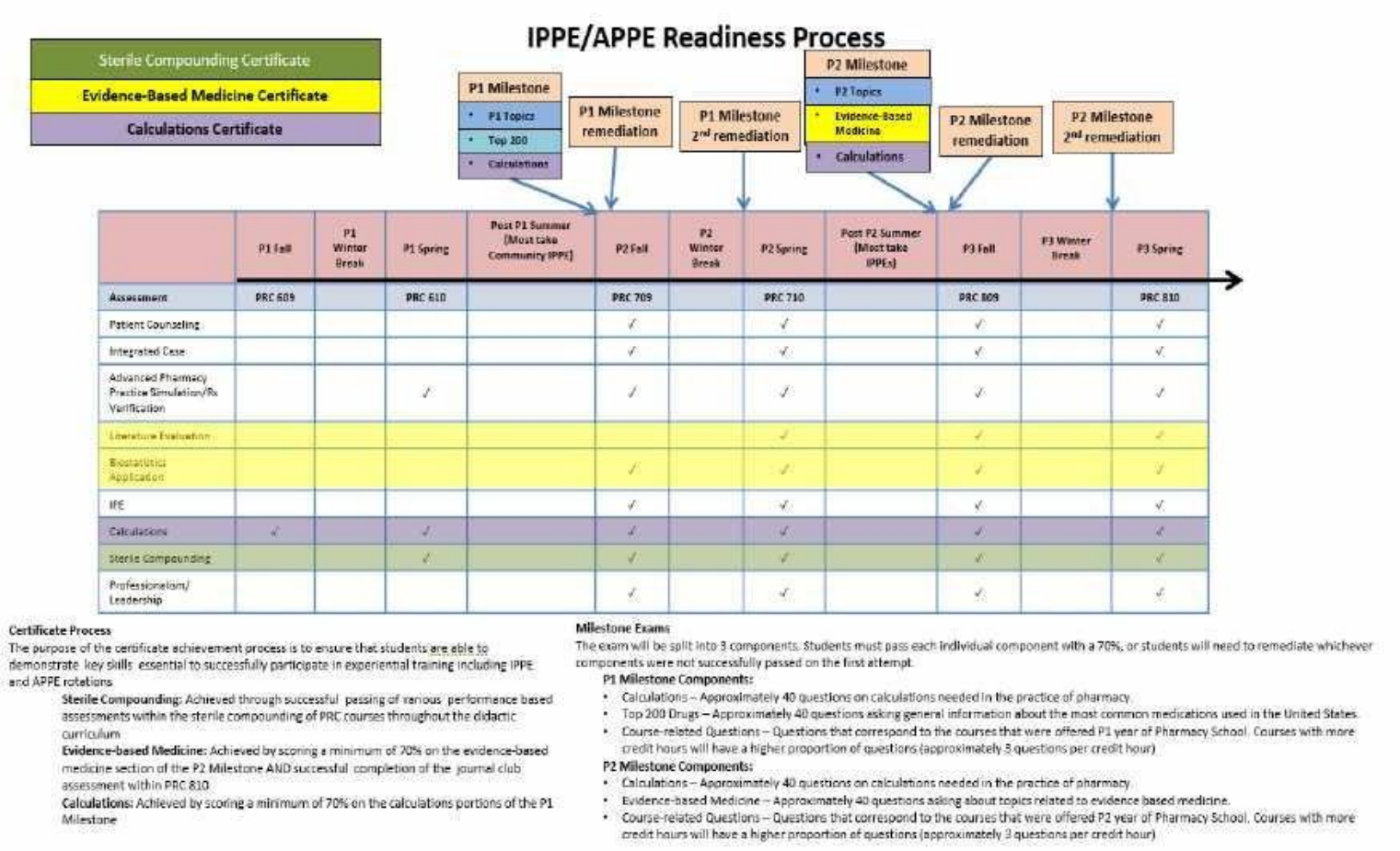
i. Pharmacotherapy (70 questions)
ii. Pharmacy calculations (10 questions)
iii. Jurisprudence (10 questions)
iv. Biostatistics/literature evaluation (10 questions)

COP also provides P4 students with a 5-day, 60-hour review course, in May, the week prior to graduation and immediately after they have completed their APPEs. The review is provided by an external vendor (PassNAPLEXNow) and the cost is split between the College and the student.

Students are provided with a two-volume study guide by the vendor. P3 students are invited to attend the review course, and they pay a discounted fee if they take it as a P3 and repeat it as a P4; attendance for P4s is mandatory.

The external provider offered follow up support for students who failed the 'capstone' exam taken by the students at the end of the course; to preserve students' anonymity the providers were not given the names of the students – the onus was on the student to make contact with the provider.

The College also provides a 1-day law review as preparation for the CPJE, traditionally conducted by the Professor who taught the law course; however in 2016 the law review was conducted as an on-line course because the instructor left CNUCOP close to the administration date of the review.



hat data were available have been gathered and centralized by the Office of Academic Affairs (OAA), and analyzed for this program review; assessment results, where available, are shown in Table 5a and correlational analyses of data from the first cohort and the classes of 2018 and 2019 to examine predictors of success and to assess whether the assessment is worth continuing, follow.

A

Analysis of COP NAPLEX scores (2012-2016)

NAPLEX data are shown in the tables below, including pass rates in comparison with national and state rates, individualized scores by class in the three areas that make up the assessment, and correlational analysis with other student performance data. These data were presented to faculty in November 2016, followed by discussion.

Table 7a: NAPLEX Pass rates

Pass rate/class	2012	2013	2014	2015	2016
CNSU	98.72 (n=78)	89.89 (n=89)	90.91 (n=88)	95.79 (n=95)	88.75 (n=80)
State	98.70	99.20	97.90	97.40	89.89
National	96.93	95.87	94.88	93.86	87.78

Three of the five COP cohorts that have so far taken the NAPLEX have exceeded national rates (2012, 2015, and 2016), shown above in bold.

Table 7b: NAPLEX Individualized scores by class

NAPLEX scaled scores by class	CO2012	CO2013	CO2014	CO2015
# students (# failed first time)	68 (2)	87 (7)	88 (7)	70 (2)
Total scaled score (SD)	106.10 (16.4)	101.18 (17.5)	106.39 (16.7)	105.49 (14.6)
Area 1 score	13.10 (1.2)	12.89 (1.2)	13.00 (1.3)	12.83 (1.1)
Area 2 score	12.30 (1.5)	11.94 (1.6)	12.70 (1.6)	12.70 (1.5)
Area 3 score	12.80 (1.8)	12.16 (1.8)	12.93 (1.5)	12.74 (2.2)

For each of the 4 years shown above our students consistently score lower in competency area 2 (medication dispensing) than the other two areas (highest possible score is 16).

NAPLEX: overall scaled score and correlations with academic performance variables: classes 2012 - 2016

Table 8a: CO 2012

	Adm. GPA	P1 GPA	P3 GPA	Grad GPA	Milestone2	Capstone	NAPLEX
Adm. GPA	1.00						
P1 GPA	-0.06	1.00					
P3 GPA	0.06	0.87**	1.00				
Grad GPA	0.00	0.82**	0.97**	1.00			
Milestone 2	0.05	0.57**	0.66**	0.59**	1.00		
Capstone	0.08	0.19	0.34**	0.32**	0.45**	1.00	
NAPLEX	0.00	0.40**	0.43**	0.46**	0.43**	0.30*	1.00

Table 8b: CO 2013

	Adm. GPA	P1 GPA	P3 GPA	Grad GPA	Milestone1	Capstone	NAPLEX
Adm. GPA	1.00						
P1 GPA	0.17	1.00					
P3 GPA	0.22*	0.92**	1.00				
Grad GPA	0.16	0.90**	0.97**	1.00			
Milestone1	0.08	0.70**	0.69**	0.70**	1.00		
Capstone	-0.01	0.33**	0.42**	0.46**	0.59**	1.00	
NAPLEX	-0.00	0.65**	0.66**	0.67**	0.63**	0.43**	1.00

*Pearson correlation; **significant at 0.01 (2 tailed)*

Table 8c: CO 2014

	Adm. GPA	P1 GPA	P3 GPA	Grad GPA	Capstone	NAPLEX
Adm. GPA	1.00					
P1 GPA	0.33**	1.00				
P3 GPA	0.35**	0.88**	1.00			
Grad GPA	0.28**	0.84**	0.97**	1.00		
Capstone	0.00	0.28**	0.23*	0.16	1.00	
NAPLEX	0.12	0.66**	0.59**	0.60**	0.16	1.00

*Pearson correlation; **significant at 0.01 (2 tailed)*

Table 8d: CO2015

	Adm. GPA	P1 GPA	P3 GPA	Grad GPA	Capstone	NAPLEX
Adm. GPA	1.00					
P1 GPA	0.30**	1.00				
P3 GPA	0.30**	0.92**	1.00			
Grad GPA	0.28**	0.88**	0.97**	1.00		
Capstone	0.16	0.50**	0.58**	0.52**	1.00	
NAPLEX	0.03	0.62**	0.63**	0.60**	0.62**	1.00

*Pearson correlation; **significant at 0.01 (2 tailed)*

The above tables in general show that the overall grade point average (GPA) at admission is not a good predictor of academic performance on the PharmD program: in certain cohorts there is a correlation with P1 and P3 GPA, but it is generally a weak correlation where it exists; the analysis also suggests that overall admission GPA does not correlate at all with performance on the Capstone or the NAPLEX.

However, while the strength of the correlation with graduation GPA varies from cohort to cohort, (see below), in general the NAPLEX overall score and correlations with graduation GPA are consistent and strong, suggesting the students who do well in the program do well in these key assessments:

CO 2012 – 0.46 (p 0.01)
CO 2013 – 0.67 (p 0.01)
CO 2014 – 0.60 (p 0.01)
CO 2015 – 0.60 (p 0.01)

Where we have Milestone data there is a moderate correlation with *Milestones* and NAPLEX scores. NAPLEX overall score and correlation with *Capstone* varied by class also, and were generally weaker than the correlation with graduation GPA:

CO 2012 – 0.30 (p 0.05)
CO 2013 – 0.43 (p 0.01)
CO 2014 – 0.16 (ns)
CO 2015 – 0.62 (p 0.01)

Just looking at the correlations for the class of 2012 (table 8a above), we see that the end of P1 year GPA was a very strong predictor of P3 GPA (0.87), and a moderate predictor (0.4) of NAPLEX score. Similarly, P3 GPA was a strong (0.66) predictor of success on the Milestone 2 exam, a weak predictor (0.34) of the Capstone score, and a moderate predictor (0.43) of NAPLEX. Furthermore, Milestone 2 was a moderate predictor (0.43) of NAPLEX, and Capstone had only a weak correlation (0.30) with NAPLEX.

We will examine NAPLEX and PCOA correlations for 2016 class when the NAPLEX scores are released in January. However, a paper by Naughton et al from 2014 which looked at correlations between PCOA and NAPLEX, showed a correlation of 0.59 (total scores only). Thus, we might expect students who get better GPAs, score higher on Milestone and Capstones (including the PCOA), are more likely to score higher on NAPLEX, so students could use the PCOA as a yardstick to measure their preparation and address deficiencies before taking NAPLEX.

NAPLEX: correlational analysis with scores for individual competency areas: 2012-2016

Correlational analysis was undertaken of the scores in the three competency areas and other performance data, for example, *Milestone* and *Capstone* scores where available, and final course grades in particular courses, or overall GPA for clinical courses. Data were not available consistently across each cohort; the tables below show the analysis conducted for each class.

Table 9a: CO 2012

	Milestone 2	Milestone 2 Mock Board	Capstone	PHAR 853	NAPLEX total	NAPLEX Area 1	NAPLEX Area 2	NAPLEX Area 3
Milestone 2	1.00							
M2 Mock Board	0.79**	1.00						
Capstone	0.45**	0.47**	1.00					
PHAR 853	0.58**	0.49**	0.22*	1.00				
NAPLEX total	0.43**	0.48**	0.30*	0.36**	1.00			
NAPLEX Area 1	0.41**	0.50**	0.35**	0.36**	0.93**	1.00		
NAPLEX Area 2	0.39**	0.33**	0.20	0.29*	0.86**	0.72**	1.00	
NAPLEX Area 3	0.19	0.16	0.10	0.31*	0.57**	0.55**	0.46**	1.00

While we know that the *Milestone 2* score for the 2012 cohort was a moderate predictor of their NAPLEX total scaled score, this table suggests it is also a moderate predictor of how well the students do in competency areas 1 and 2 but not area 3.

The *Capstone* score is a weak to moderate predictor for the NAPLEX total scaled score and area 1, but there is no correlation for areas 2 and 3. Taking just one P3 therapeutics course (PHAR

853) to explore any correlation between specific classes and NAPLEX competency areas, we can see that this course is a weak to moderate predictor for the three different competency areas.

Correlations and trends are not consistent across the cohorts, for example, for the CO 2014 there is no correlation between the Capstone and any of the NAPLEX scores, while for the classes of 2013 and 2015 Capstone correlates moderately (CO 2013) to strongly (CO2015) with all (overall and area) NAPLEX scores.

Table 9b: CO 2013

	Milestone 1	Capstone	PHAR 853	P3 Clinical GPA	NAPLEX total	NAPLEX Area 1	NAPLEX Area 2	NAPLEX Area 3
Milestone 1	1.00							
Capstone	0.59**	1.00						
PHAR 853	0.40**	0.41*	1.00					
P3 Clinical GPA	0.48**	0.39**	0.71**	1.00				
NAPLEX total	0.63**	0.43**	0.41**	0.47**	1.00			
NAPLEX Area 1	0.60**	0.44**	0.41**	0.49**	0.90**	1.00		
NAPLEX Area 2	0.54**	0.35**	0.35**	0.35**	0.72**	0.85**	1.00	
NAPLEX Area 3	0.53**	0.28**	0.29**	0.25*	0.66**	0.75**	0.61**	1.00

Table 9c: CO 2014

	Capstone	P3 Science GPA	P3 Clinical GPA	NAPLEX total	NAPLEX Area 1	NAPLEX Area 2	NAPLEX Area 3
Capstone	1.00						
P3 Science GPA	0.19	1.00					
P3 Clinical GPA	0.15	0.89**	1.00				
NAPLEX total	0.16	0.21*	0.40**	1.00			
NAPLEX Area 1	0.14	0.34**	0.49**	0.88**	1.00		
NAPLEX Area 2	0.12	0.07	0.21*	0.82**	0.59**	1.00	
NAPLEX Area 3	0.13	0.24*	0.17	0.47**	0.36**	0.34**	1.00

Table 9d: CO 2015

	Capstone	P3 Science GPA	P3 Clinical GPA	NAPLEX total	NAPLEX Area 1	NAPLEX Area 2	NAPLEX Area 3
Capstone	1.00						
P3 Science GPA	0.39**	1.00					
P3 Clinical GPA	0.59**	0.75**	1.00				
NAPLEX total	0.62**	0.38*	0.61**	1.00			
NAPLEX Area 1	0.59**	0.36**	0.57**	0.87**	1.00		
NAPLEX Area 2	0.57**	0.24**	0.50**	0.82**	0.63**	1.00	
NAPLEX Area 3	0.35**	0.18	0.38**	0.56**	0.42**	0.40**	1.00

CPJE pass rates for COP compared with state rates

Pass rates for COP students are generally favorable when compared with state rates, with three cohorts having higher pass rates while two cohorts have lower ones.

Table 10: CPJE pass rates for COP graduating classes

Description	Class of:				
	2012	2013	2014	2015	2016
CPJE pass rate - CNUCOP	98.50	86.70	92.70	89.70	92.2
CPJE pass rate - California	95.10	89.60	92.50	92.60	81.9

Student awards

The students at California Northstate University College of Pharmacy are heavily involved in student organizations and fraternities that are dedicated to not only facilitating community service events but also to hosting knowledge-based pharmacy competitions. At local competitions hosted by our student organizations and/or fraternities, students' clinical knowledge is evaluated and the winner of local competitions travels to compete in state, regional, and national competitions. As a result, a number of our students have been recognized at the state, regional, and national level for their notable achievements in patient counseling competitions, clinical skills competitions, and quiz bowl competitions, to name a few. A significant number of our students are also engage in research with faculty mentors and have received recognition at California Northstate University's Research Day for their poster presentations. Our CAPSLEAD team also travels to regional and national meetings to present their research projects in a poster format at least once a year.

Examples of some recent awards and recognitions received by our students from 2015 through 2017 are provided in the box below:

In addition to various awards made externally to our students, as detailed above, California Northstate University College of Pharmacy also makes available a number of different scholarships and awards (approximately 15) to qualifying pharmacy students. Scholarship and award criteria vary but are typically based on academic performance, financial need, community outreach involvement, and professionalism or leadership skills. Each one has different eligibility criteria and students can make individual applications to any number of scholarship and/or awards. The de-identified applications are reviewed by the College's Scholarship and Award committee. Rubrics are used to evaluate each scholarship, and award recipients are selected based on rubric score. All scholarship and award recipients are recognized and honored at the *Scholarship and Awards Ceremony*, held in April of each year. The table below lists all the scholarship awards made in 2015-2016, along with the sponsor and value of the award.

CNUCOP Student Scholarships and Awards List

AY 2020-2021

Internal Scholarships and Awards:

President's Scholarship		
Last Name	**First Name**	**Award Amount**
Karimi	Mujibullah (P1)	$1,000.00
Singh	Sarfraaz (P2)	$1,000.00
McCann	Kayla (P3)	$1,000.00
Nguyen	Christina (P4)	$1,000.00
Subtotal		**$4,000.00**

Dean's Scholarship		
Last Name	**First Name**	**Award Amount**
Sereshki	Roya (P1)	$500.00
Nguyen	Randy (P2)	$500.00
Isha	Onel (P3)	$500.00
Jiang	Jasmine (P4)	$500.00
Subtotal		**$2,000.00**

CNUCOP Researcher of the Year		
Last Name	**First Name**	**Award Amount**
Sangha	Abneet (P1)	$100.00
Cartier	Kyle (P2)	$100.00
Luu	Vy Tran (P3)	$100.00
Gill	Sukhpreet (P4)	$100.00
Subtotal		**$400.00**

CNUCOP Academic Excellence Award		
Last Name	**First Name**	**Award Amount**
Karimi	Mijibullah (P1)	$100.00
Sedki	Farah (P2)	$100.00
Luu	Vy Tran (P3)	$100.00
Subtotal		**$300.00**

CNUCOP Community Service and Leadership Award		
Last Name	**First Name**	**Award Amount**
Yu	Jiang (P1)	$100.00
Nguyen	Randy (P2)	$100.00
Oki	Reilly (P3)	$100.00
Subtotal		**$300.00**

P1 Milestone Exam Scholarship Recipients (P2s)		
Last Name	**First Name**	**Award Amount**
Rahimi	Fareed	$500.00
Akerlund	Alexander	$500.00
Huang	Raymond	$500.00
Dai	Janine	$500.00
Rowe	Danielle	$500.00
Wong	Patrick	$500.00
Do	Thao	$500.00
Cheng	Kenneth	$500.00
Wong	Brian	$500.00
Sedki	Farah	$500.00
Subtotal		**$5,000.00**

P2 Milestone Exam Scholarship Recipients (P3s)		
Last Name	**First Name**	**Award Amount**
Duong	Nhi	$500.00
Phan	Sang	$500.00
Lam	Julie	$500.00
Bassi	Rohit	$500.00
Surti	Maria	$500.00
Tran	Quynh	$500.00
Tiet	Jenny	$500.00
Sidhu	Manpreet	$500.00
Kazaryan	Hesu	$500.00
Liu	Jun Ting	$500.00
Subtotal		**$5,000.00**

Qualifying Exams (P4)		
Last Name	**First Name**	**Award Amount**
Browning	Elizabeth	$500.00
Nguyen	Bichvy	$500.00
Twomey	Lucy	$500.00
Magana	Karina	$500.00
Lessagholiam	Siuneh	$500.00
Magness	Jennifer	$500.00
Barekat	Ayeh	$500.00
Castroreale	Jake	$500.00
Vo	Nhu	$500.00
Nguyen	Jenny	$500.00
Subtotal		**$5,000.00**

CNUCOP Admissions Scholarships Award Recipients		
Last Name	**First Name**	**Award Amount**
Abdulla	Tureye	$1,000.00
Allami	Shahad	$3,000.00
Almukhtar	Rami	$10,000.00
Andrawes	Sara	$1,000.00
Ayala	Alyssa	$1,000.00
Bhullar	Haripaul	$3,000.00
Dang	Tieu Nhi	$1,000.00
Dhillon	Simran	$3,000.00
Doan	Anh	$5,000.00
Fares	Zeena	$3,000.00
Ho	Anh	$3,000.00
Huynh	Tuanh Kayla	$1,000.00
Iwuchukwu	Ginika	$1,000.00
Kaur	Anmolpreet	$10,000.00
Kaur	Navdeep	$1,000.00
Li	Jennifer Jie Ying	$3,000.00
Lor	Maixee	$1,000.00
Lor	Matt	$3,000.00
Ly	Ritchie	$3,000.00
Moosavi	Zuhurr	$1,000.00
Moua	Victoria	$3,000.00
Mussayar	Sheela	$2,000.00
Nguyen	Hang	$5,000.00
Nugyen	Vi	$3,000.00
Nubla	Brandon	$1,000.00
Oleksiyenko	Oleg	$3,000.00
Purewal	Tarwinder	$10,000.00
Rhodus	Vanessah	$3,000.00
Sangha	Abneet	$1,000.00

Sereshki	Roya	$3,000.00
Singh	Gurjot	$1,000.00
Singh	Trish	$3,000.00
Straw	Tawni	$1,000.00
Tan	Madison Rose	$2,000.00
Tran	Thuong	$3,000.00
Vang	Matthew	$3,000.00
Vang	Shannon	$1,000.00
Vi	Taylor	$1,000.00
Yang	Hualia	$3,000.00
Yu	Jiang	$1,000.00
Zheng	Xinge	$5,000.00
Subtotal		**$116,000.00**

External Scholarships and Awards:

NCEF Tuition Assistance Scholarship		
Last Name	**First Name**	**Award Amount**
Brandt	Kevin	$2,000.00
Carmon	Helena	$6,000.00
Castaneda	Felipe	$6,000.00
Daniliuc	Rachel	$2,000.00
Ho	Andy	$2,000.00
Hormoz	Edna	$2,000.00
McCann	Kayla	$2,000.00
Nguyen	Jenny	$6,000.00
Nugyen	Duyen	$6,000.00
Phan	Khanh	$2,000.00
Tran	Quynh	$2,000.00
Yasin	Fatima	$6,000.00
Subtotal		**$44,000.00**

NCEF Exceptional Professionalism, Leadership, and Academic Performance Scholarship		
Last Name	**First Name**	**Award Amount**
Yu	Jiang	$500.00
Huynh	Amber	$500.00
Kaur	Harveer	$500.00
Rosca	Ana	$500.00
Sran	Navdeep	$500.00
Subtotal		**$2,500.00**

NCEF Need-Based Scholarship		
Last Name	**First Name**	**Award Amount**
Jawid	Abdul	$500.00
Ayala	Alyssa	$500.00
Ho	Anh	$500.00
Vang	Shannon	$500.00
Moua	Victoria	$500.00
Subtotal		**$2,500.00**

Walgreens Diversity Scholarship		
Last Name	**First Name**	**Award Amount**
Bui	Tram	$2,500.00
Subtotal		**$2,500.00**

Walgreens Multilingual Scholarship		
Last Name	**First Name**	**Award Amount**
Tu	Nhan	$2,500.00
Subtotal		**$2,500.00**

CVS Scholarship		
Last Name	**First Name**	**Award Amount**
Moghaddam	Hooman	$1,000.00
Subtotal		**$1,000.00**

Rite Aid Scholarship		
Last Name	**First Name**	**Award Amount**
Phan	Yvonne	$2,500.00
Duong	Co	$2,500.00
Subtotal		**$5,000.00**

Viatris Excellence in Pharmacy Award		
Last Name	**First Name**	**Award Amount**
Vo	Nhu	Not Monetary

USPHS Excellence in Public Health Pharmacy Award		
Last Name	**First Name**	**Award Amount**
McCann	Kayla	Not Monetary

Sacramento Valley Pharmacists Association		
Last Name	**First Name**	**Award Amount**
Oki	Reilly (P3)	$750.00
Swanberg	Alexander (P2)	$750.00
Subtotal		**$1,500.00**

AACP Walmart Scholar Award		
Last Name	**First Name**	**Award Amount**
Domingo Lugtu	James Alexander	$600.00 to attend AACP Seminars
Subtotal		**$600.00**

CSHP-SV Chapter: Intern Pharmacists Scholarship Award		
Last Name	**First Name**	**Award Amount**
Li	Vivi	$500.00
Subtotal		**$500.00**

CSHP: Student Leadership Award		
Last Name	**First Name**	**Award Amount**
Saechao Cuddy	Jacqueline	Registration to Conference $265.00
Subtotal		**$265.00**

San Quach Leadership Award by Phi Delta Chi		
Last Name	**First Name**	**Award Amount**
Jee	Jacquelyn	$250.00
Subtotal		**$250.00**

Future Leaders in Healthcare Award		
Last Name	**First Name**	**Award Amount**
Kaur Dhindsa	Ramanpreet	Not Monetary

CPhA-ASP Chapter of Excellence Award	
CNU CPhA/APhA-ASP Chapter	Not Monetary

TOTAL CNU-COP STUDENT SCHOLARSHIPS AWARDED, AY 2020-2021
Internal Scholarships: $ 138,000.00
External Scholarships: $ 63,115.00
Overall Total: $ 201,115.00

Student satisfaction

Data on student satisfaction with and views about the College and their experiences are derived from two main sources: annual surveys conducted electronically by the American Association of Colleges of Pharmacy (AACP), and CNU's own internal institutional survey, introduced in 2016 in order to gather supplemental data specific to the College. This was conducted electronically, using SurveyMonkey, and administered and overseen by the COP Assessment Committee. Results are anonymous, neither are mandatory for students to complete, and response rates overall are low (see Table 11). Thus, while individual results from any given year are interpreted and acted upon with caution, they are useful for indicating trends, and they allow the College an opportunity to reflect on student perceptions.

Table 11: Response rates for AACP and CNSU student surveys

Number (response rate)	**2012**	**2013**	**2014**	**2015**	**2016**
AACP Alumni Survey		9/83 (10.8%)	27/171 15.8%)	11/253 (4.3%)	NA
AACP Graduate Survey	20/86 (23.2%)	9/88 (10.2%)	37/90 (41%)	6/98 (6.1%)	38/96 (40.4%)
CNSU Graduate Survey					46/96 (48%)

The AACP Graduating Student Survey of 2016 asked 79 questions, divided into eight sections addressing students' views and/or experiences on IPE, curriculum, pharmacy practice experiences, student services, educational resources, and overall impressions of the College and the profession. Summary results from the latest (2016) AACP Graduating Student Survey can be found in *Appendix 15*. The University's Graduating Student Survey of 2016 asked students questions that were more specific to their time at CNSU, such as views on TBL and the PassNaplexNow Board review course, and whether they would recommend the program. A summary of the results from the 2016 CNU Graduating Student Survey is given in *Appendix 16*.

In the 2016 AACP Graduating Student Survey respondents generally reported high levels of satisfaction, with general agreement of approximately 80% or higher, in the areas of inter-professional education and professional competencies, outcomes, and curriculum. Respondents reported general satisfaction with the varied experiences offered in the Introductory Pharmacy Practice rotations, with at least 73% agreement (e.g., students gained involvement in direct patient responsibilities in community and institutional settings); students were similarly positive about the Advanced Pharmacy Practice Experiences with at least 80% agreement (e.g., students engaged in direct patient care in a community, ambulatory care, hospital or health-system pharmacy, and inpatient/ acute care settings).

An area for commendation is that respondents reported their pharmacy practice experiences

allowed them direct interaction with diverse patient populations (94.8% agreement) and allowed them to collaborate with healthcare professionals (94.7% agreement). An additional component of students' positive educational experience was that preceptors modeled professional attributes and behaviors (81.6% agreement) and preceptors provided students with individualized instruction, guidance, and evaluation (84.2% agreement). Respondents also reported high levels of satisfaction of the College for its support of students' professional organizations (89.5% agreement) and students' participation in regional, state, or national pharmacy meetings (78.9% agreement).

In the area of student services, respondents reported that the school provided limited career planning guidance and financial aid advising. Additional financial aid advising sessions were added to the candidate interview days in 2016, and financial aid met with each of the current cohorts and worked with any student who expressed a desire for assistance. In general, respondents noted that the school's communication about events and timely address of student concerns is an area that can be improved. Plans for improvement of communication across the university are already underway, including the creation of a policy for the timely and appropriate dissemination of information from the Board of Trustees and the President's Executive Council to constituencies. Negative feedback received in open comments from the students about the 2016 graduation ceremony, about turnover and retention of faculty, and lack of federal financial aid, have all been noted and are being addressed at the Institutional and College levels.

As well as current students, alumni are surveyed about their experiences at the College and results are used to evaluate the program and make appropriate changes. Feedback from earlier AACP Alumni Surveys which highlighted views on the small range and lack of elective choice played a role in curricular revision and improvement the following academic year. With only three topics offered for electives in both the Fall and Spring semesters of the 2013-2014 academic year the College made a special effort to expand the choice of electives on offer to students: in Fall 2015 students were offered a choice of seven electives (one was offered on- line, and one was delivered in the week before the semester started), and they included a range of advanced clinical topics, as well as topics from the behavioral sciences. In the following Spring semester, five electives were offered - one from the clinical department and four from the sciences department.

Faculty

i. Faculty credentials

Faculty and their credentials are listed alphabetically in *Appendix 17.* All faculty has either a PharmD or PhD. Specialties and/or disciplines represented include: Cardiology, Medicinal Chemistry, Psychiatry, Law, Infectious Disease, Social Pharmacy and Clinical and Administrative Sciences. The CAS department faculty are either residency trained, or have post-doctoral fellowships, and Institutions where faculty earned their degrees include Schools of Pharmacy in the United Kingdom, other California Colleges of Pharmacy, or institutions elsewhere in the USA, including George Washington University, Duke University, University of Texas, Idaho State University, and Massachusetts College of Pharmacy.

Table 12 identifies the current or future practice site plans of the clinical faculty. Five have practice sites: in community pharmacy, at a general hospital, at a family medical clinic and in a military medical group; three faculty are seeking out sites for potential placements.

ii. Faculty Resources

As of the time of writing this report in 2022, the table below illustrates the latest FTEs and faculty in the three departments at the college: 1) Pharmaceutical and Biomedical Sciences (PBS), 2) Clinical and Administrative Sciences (CAS), and 3) Experiential Education Departments. CNUCOP houses 32 FTE as of the summer of 2022.

Faculty	FTE	Notes
Fakhrul Ahsan	1	PBS
Suzanne Clark	1	PBS
Ahmed El-Shame	1	MPS/PBS
Abdelbasset Farahat	0.5	MPS/PBS
Linh Ho	1	PBS
Zhuqiu (James) Jin	1	PBS
Tarek Kassem	1	PBS
Uyen Minh Le	1	PBS
Ashim Malhotra	1	PBS
Islam Mohamed	1	PBS
Dipongkor Saha	1	PBS
Ruth Vinall	1	PBS
Hongbin Wang	1	MPS/PBS
Tibebe Woldemariam	1	PBS
Total FTE in PBS	13.5	

Clinical and Administrative Sciences

1	Shahanara	Ahsan
1	Jared	Cavanaugh
1	Bin	Deng
0.5	Kevin	Dong
1	Sorosh	Kherghehpoush

1	Eugene	Kreys
0.6	Tiffany	Kreys
1	Justin	Lenhard
1	Welly	Mente
0.2	Ivan	Petrzelka
1	Victor	Phan
1	Oliva	Phung
1	Peter	Tenerelli
1	Erika	Titus-Lay
1	Tuan	Tran
13.3		Total

* FTE: 13

1 open position in CAS.

EE:

So	An	1
Jason	Bandy	1
Jennifer	Courtney	1
Tony	Eid	1
Jeffrey	Nehira	1
Kristine	Thomas	1
	Total	6

Total FTE=32

Table 12. Faculty Practice Sites and Future Plans

Faculty Name	Practice Site	Comments
Diana Cao	(In Progress) Dignity Health Heart & Vascular Institute, Mercy General Hospital Sacramento, CA	Affiliation agreement under legal review
Tony Eid	9th Medical Group, Beale Air Force Base Beale Air Force Base, CA	Co-Chair, Department of Experiential Education
Joe Hubbard	Don's Pharmacy Reno, Nevada	-
Sukhvir Kaur	Family Medicine Clinic, Sutter Medical Center Sacramento Sacramento, CA	-
Justin Lenhard	To Be Determined	Waiting for California Registered Pharmacist Licensure Potential site: Woodland Memorial Hospital, Woodland, CA
Welly Mente	To Be Determined	Activity seeking out potential site for placement
Martha Pauli	Eskaton Facilities Sacramento, CA	Co-Chair, Department of Experiential Education
Sam Rasty	Family Medicine Clinic, Sutter Medical Center Sacramento Sacramento, CA	-

iii.Teaching quality and effectiveness: students' evaluation of faculty and courses

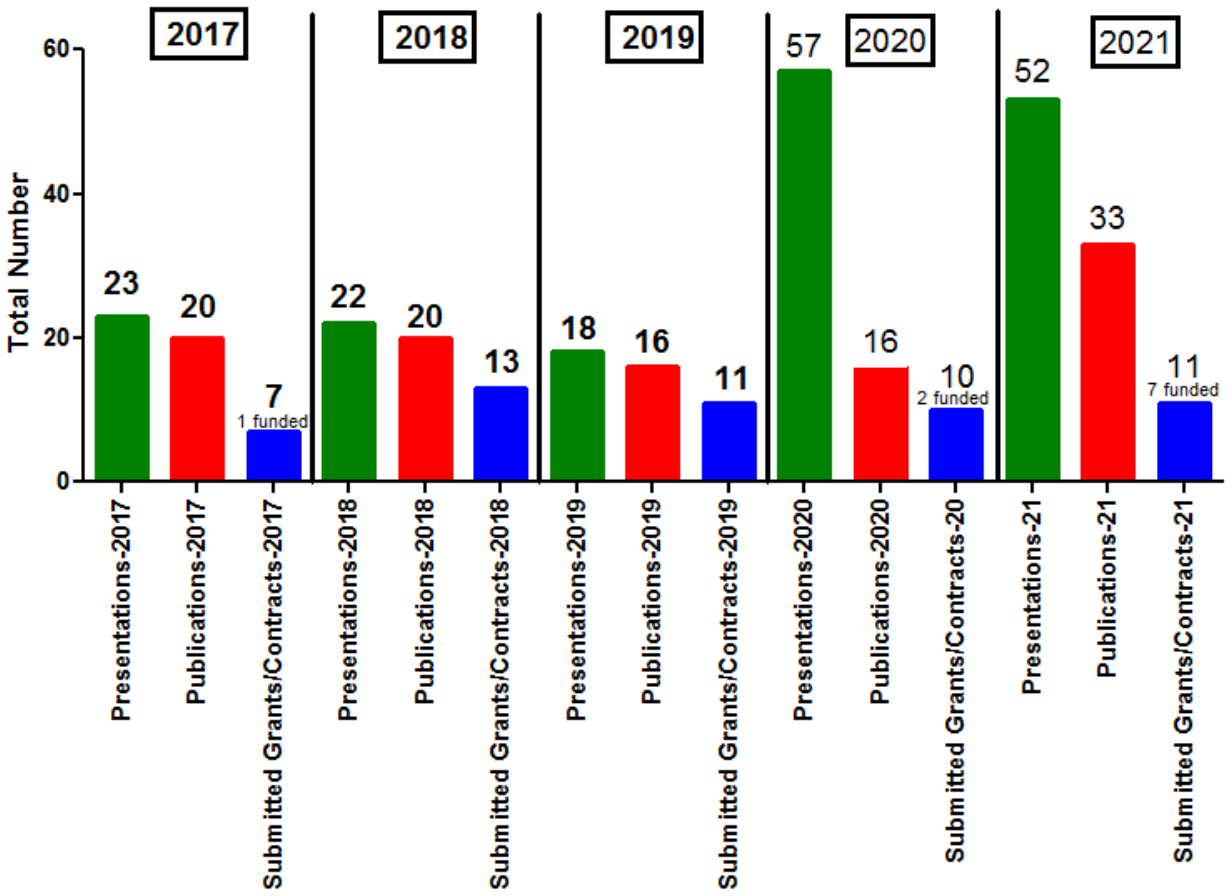
Towards the completion of the semester all core and elective courses and their instructors are evaluated by the students using an anonymized electronic questionnaire administered through SurveyMonkey. (See *Appendix 18* for the Course/Faculty Evaluation questions). Questions were revised in spring 2016 to enhance feedback specific to TBL delivery and to ensure 360 degree evaluation of the instructors' teaching skills. The process is carried out by the department's administrator. A link to the questionnaire is shared with the students in the classroom by the department's administrator. At the completion of the semester, and once all course grades are reported to the Office of the Registrar, the respective department Chair shares the course and instructors' evaluations with each faculty.

In general students were satisfied with the delivery and the content of the courses taught by the faculty. Student's satisfaction on many components of the courses was close to 100%. A general trend is the students' request for summary review of the key concepts, and request for more time to be dedicated to difficult topics. In the most recent round of evaluations a request was made by students to limit the number of instructors for each course.

Research and scholarship

Faculty in COP are encouraged to engage in research and scholarly activity and various initiatives are in place to help support their development. These initiatives include annual development funds of $3,000 each that faculty can use to support research, conference attendance or other professional development. The University also supports a continuing education program, a series of monthly Research seminars, and ad-hoc training seminars in topic areas that have been identified by faculty in regular surveys asking about development needs. These have included sessions on preparing research manuscripts, applying for industry grant funding, on TBL, on preparing rubrics, and on assessment best practice. All these initiatives have resulted in an enhancement of faculty productivity through the years.

As an example, in the academic year 2020-2021, Faculty accomplishments included peer-evaluated publications, 53 research presentations, 10 external grant applications, 8 internal grant applications. Seven external grant applications were funded, with more an one million dollars in research funding, while 11 internal grants received funding. Seven students received funding, of whom 6 were internally funded, while one achieved extramural funding support. A list of the faculty's publications (2019-2021) can be found in *Appendix 19*. The graph below depicts a summary of CNUCOP faculty's productivity since 2017.



iv. Development opportunities for teaching

The College of Pharmacy provides intensive training in TBL instruction for new and experienced faculty. As part of the orientation, new faculty receive hands-on training to learn and practice TBL techniques and they are expected to shadow experienced faculty to observe a TBL session in class. In 2016 two orientation sessions were organized, one in July attended by 5 faculty, and one in August, attended by 2 faculty and four residents. New faculty also are assigned a short and long-term mentor for continuous training on TBL techniques (see section 3b (vi) for more detail about the mentoring scheme). On-going development opportunities specifically around teaching are multi-faceted and include:

1. On-Campus TBL workshops to share TBL best practice and emerging information
2. Funding of Educational Scholarship through educational grants
3. A discretional fund for faculty to attend local and national conferences on TBL pedagogy

Two on-campus workshops were held in 2016, one in January entitled: “Jeopardy-style exam review in a TBL class using team-clickers”, a university-wide event attended by COP and COM faculty. The second event, conducted by 3 experienced TBL faculty was a training session entitled: “Design and facilitation of successful team-based learning”; this was attended by 11 COP faculty and two P4 students.

In 2016 three faculty were supported to attend the TBLC National Conference (March 2016), and one faculty attended a regional TBL conference in San Francisco. While TBL is naturally a focus of many of the development opportunities sought by faculty, others include The Teaching Professor Conference, attended by an associate professor in 2015 in Georgia, Atlanta; and in the last five various faculty have attended a number of different WASC conferences or educational programs. Finally, one education grant, worth $2000, was awarded to Dr. Ruth

Vinall, for a project entitled: “Use of Mini-application Exercises to Enhance Student Performance in a team-based learning setting”.

At the level of CNUCOP, the College’s Faculty Development, Orientation, and Mentoring Committee organized faculty development and training events. These were specific to cater to the needs of the pharmacy faculty at the College. The following table summarizes the faculty development seminars and workshops presented since 2019.

Presentation Title	**Presenter**	**Presenter Internal/External**	**Date**
Outcomes Based Research and How to Get Started in Research	Denis Ishisaka, PhD	External - Senior Manager, Provider Partnerships at Blue Shield of California	30-Jul-19
How to Write a Review Article	Justin Lenhard, PharmD	Internal	29-Oct-19
Faculty Development Committee/Center for Teaching and Learning (FDC/CTL) Summer Writing Workshop	Suzanne Clark, PhD	Internal	Summer 2020 - 5 sessions
Faculty and Staff Orientation	Various Presenters	Internal	4-Aug-20
Pharmacogenomics for Pharm D Students"	Yagna Jarajapu, MPharm, PhD	External - Associate Professor at North Dakota State University	2-Mar-21
Faculty and Staff Orientation	Various Presenters	Internal	July 12, 2021 and August 12, 2021
Promotion and Dossier Development	James Jin, PhD and Jason Bandy, PharmD and Uyen Le, PhD and Linda Buckley	Internal	August 12,2021
How to Lead an Effective Meeting	Jeffrey Nehira, PharmD and Justin Lenhard, PharmD	Internal	22-Oct-21
Faculty Development Session on Advising	Suzanne Clark, PhD and Peter Tenerelli, PharmD and Victor Phan, PharmD, Erika Titus-Lay, Pharm	Internal	14-Jan-21
Statistics Refresher and Meta-Analysis Overview	Eugene Kreys, PharmD, PhD and Olivia Phung, PharmD	Internal	8-Jun-22

In addition to the college-level faculty development programming, in 2018, the University established the Institute of Teaching and Learning Excellence (ITLE). ITLE was created by and placed within the university Vice President of Academic Affairs office. ITLE adopted five different areas to focus on for its inaugural strategic plan. These included: 1) faculty learning communities, 2) technology development and

enchantments for teaching and learning, 3) interprofessional education, 4) the scholarship of teaching and learning, and 5) writing center. ITLE developed and offered 51 different workshops and seminars for faculty and professional development during the years since its establishment. Additionally, ITLE also created seed grant funding to encourage faculty to develop scholarship of teaching and learning projects. Below, is a summary of the workshops and seminars offered by the ITLE to highlight the rich diversity of professional training opportunities to keep CNU faculty current, well informed, and engaged.

ADDITIONAL FACULTY RESOURCES: FACULTY PROFESSIONAL, AND TEACHING AND LEARNING DEVELOPMENT ACTIVITIES AT THE UNIVERISTY LEVEL

1. ITLE, FACULTY DEVELOPMENT

University Distance Education Certification Program. Program Leads: **Malhotra A**, Wang L.
2022: Where do we go from here in distance learning teaching certification? Wang L.
2022: Utilizing the power of outcome feature in Canvas for accreditation, assessment. Corniola R.
2022: Promoting professionalism in online teaching. Vinall R and Tenerelli P.
2022: Creating effective communications with your online students. Wise F.
2021: Using a course template to jumpstart online course design. Wang L
2021: Creating an engaging online learning community. Wang L.
2021: Using the Quality Matters online review system for course improvement. Wang L.

Predicting The Future: Incorporating AI in Health Professions Education. Leads: **Malhotra A**, Sun Y.
2022: Introduction to machine learning, strategic overview under a modern optimization lens. Sun Y.
2022: Introduction to machine learning: basic predictive analysis. Sun Y.
2022: Introduction to machine learning: basic classification and clustering. Sun Y.

CNU Diversity, Equity, and Inclusion Summit
2021: Pioneered the first DEI summit at CNU. Invited 3 Deans from the colleges of pharmacy, engineering, and medicine from Texas A&M University to discuss the incorporation of DEI initiatives in health professions curricula. Video link to the summit: https://www.youtube.com/watch?v=vO7x71DWGrY

University Faculty Learning Communities Program, Program Lead: Malhotra A.
Theme – Learn to enhance classroom teaching by incorporating technology.
2019: Orientation – What is a Faculty Learning Community? Malhotra A and Yarbrough T.
2019: Building hybrid lessons using ActivePresenter. Tran T.
2019: Essentials of hybrid course design. Malhotra A.
2019: Lessons from establishing an online course at CNU. Vinall R.
2019: Strategies for effective communication with the online learner. Wise F.
2019: Attendee presentations and certification ceremony. Malhotra A, convener.

University Faculty Development, Program Lead: **Malhotra A**

2021: Lessons learned from the Harvard Macy Institute-leading innovations in healthcare. Nehira J, Wu R, ElShamy A, Corniola R, Schneider A.
2021: Peer learning assistance and online support. Leite F.
2021: Is it hot in here? The learning climate in your classroom. Patterson D-J.
2021: Strategy, tactics, and organizational structure. Khatri V.
2021: Adding value: A practical and quick approach to oral health assessments.
2021: A psychology toolbox for professor-student interaction – active listening, feedback sandwich, and the difference between empathy and sympathy. Schneider A.
2021: Developing a student ambassador program. Jazbi P.
2020: Comparing Team-Based, Case-Based, and Problem-Based pedagogies. Patterson D-J.
2020: Using Turning Point Technologies TTPOLL assessment to engage the classroom. Mente W.
2020: Using next-gen technologies like 3D printing and computer simulations in medical education.

Puglisi J
2020: Electronic health records as a teaching tool for medical and pharmacy students. DiSibio G.
2019: Team Based Learning, memory retrieval, and durable learning. Clark S.
2019: Online course: A faculty toolbox. Leite F and Olabi RA.
2019: Understanding how your exam questions perform: assessment analysis from ExamSoft. Le U.
2019: A comprehensive guide to creating rubrics using ExamSoft. Kreys E.
2019: Creating analytic rubrics for assessing student learning and performance. McClendon K.
2019: Intelligent design in health professions education: Knowing your students as consumer and customer. Yarbrough T.

Peer Observation vs Peer Evaluation and the Effect on Promotions, Program Lead: **Buckley L and**

Malhotra A2021: In partnership with the university VP of Institutional Effectiveness, created a train-the-trainer program to discuss efforts to move college-level faculty peer observations away from an evaluation mentality. Program was presented by an expert from the University of San Francisco. 20 faculty from across CNU were selected by the college Deans to receive this training.

INSTITUTE FOR TEACHING & LEARNING EXCELLENCE

OFFICE FOR THE VICE PRESIDENT OF ACADEMIC AFFAIRS, CNU

ITLE's

Fall
Faculty Development Series

MONDAYS

12 p.m. – 1 p.m.
Room 175 1A

WORKSHOP LEAD FACILITATORS

Dr. Tracy Yarbrough, COM
Andragogy Theory & Techniques

Dr. Karen McClendon, OIE
Assessment Rubrics

Dr. Suzanne Clark, COP
Team-Based Learning, Memory Retrieval, and Durable Learning

Dr. Reem Al'Olaby, CHS
How to Design Online Courses

Dr. Uyen Le, COP
ExamSoft for Assessment

Dr. Eugene Kreys, COP
Skills Assessment

Dr. Francisco Leite, CHS
How to Design Online Courses

A series of workshops emphasizing different pedagogical strategies aimed at CNU faculty in healthcare education.

Brown bag lunch is provided.

QUESTIONS? EMAIL DR. ASHIM MALHOTRA AT ASHIM.MALHOTRA@CNSU.EDU

CALIFORNIA NORTHSTATE UNIVERSITY — COLLEGE OF HEALTH SCIENCES
CALIFORNIA NORTHSTATE UNIVERSITY — COLLEGE OF PHARMACY
CALIFORNIA NORTHSTATE UNIVERSITY — COLLEGE OF MEDICINE
CALIFORNIA NORTHSTATE UNIVERSITY — MASTER OF PHARMACEUTICAL SCIENCES
CALIFORNIA NORTHSTATE UNIVERSITY — COLLEGE OF PSYCHOLOGY
CALIFORNIA NORTHSTATE UNIVERSITY — COLLEGE OF DENTAL MEDICINE

INSTITUTE FOR TEACHING & LEARNING EXCELLENCE

OFFICE OF THE VICE PRESIDENT OF ACADEMIC AFFAIRS, CNU

Faculty Development Workshops

Spring 2020

A series of workshops emphasizing different pedagogical strategies aimed at CNU faculty in healthcare education.

Brown bag lunch will be provided.

QUESTIONS? EMAIL DR. ASHIM MALHOTRA AT ASHIM.MALHOTRA@CNSU.EDU

CALIFORNIA NORTHSTATE UNIVERSITY

The Institute of Teaching & Learning Excellence

Office of the CNU Vice President of Academic Affairs

Announces

CNU Grant Writers League (*CNU-GWL*)

The purpose of the CNU Grant Writers League (CNU-GWL; *pronounced "snuggle")* is to provide a peer platform to develop, practice and enhance grant writing skills.

Project Lead: Dr. Ruth Vinall, Asst. Dean of Research, CNUCOP

Session 1. February 25th, 2020. Events Center. 12-2 pm

TOPIC: ***New Investigator Awards and Training grants; overview of grant components***

Panel members: Drs. Justin Lenhard (COP), Ruth Vinall (COP), Arpita Vyas (COM)

Session 2. March 9th, 2020. Events Center. 12-2 pm

TOPIC: ***Federal and state grants; finding appropriate funding mechanisms/writing a strong specific aims page***

Panel members: Drs. Ghalib Alkhatib (COM), Yihui Shi (COM), Jason Lillis (Psych), Paul Glassman (CDM)

Session 3. April 7th, 2020, Events Center. 12-2 pm

TOPIC: ***Student grants applications (this session is primarily for students).***

Panel members: Drs. Ashim Malhotra (COP) and Linda Buckley (COP)

Session 4. May TBD

TOPIC: ***Grant writing tips and tricks; writing a strong research strategy***

Panel members: Drs. Sonal Desai (senior grant writer, UC Davis), Craig Wetterer (Psych).

Questions? Please email Dr. Ashim Malhotra, Director, CNU ITLE. E: ashim.malhotra@cnsu.edu

CALIFORNIA NORTHSTATE UNIVERSITY

Institute of Teaching and Learning Excellence (ITLE)

Office of the CNU Vice President of Academic Affairs

SPRING 2021

INSTRUCTIONAL DESIGN WORKSHOPS

Li Wang
Doctor of Philosophy

Dr. Li Wang received a Ph.D. in Curriculum and Instruction and two Master's in Curriculum and Instruction and Educational Technology/Psychology. Since 1999, she has supported faculty development for increasing student engagement, and instructional redesign for face to face, online and blended learning, and the scholarship of teaching and learning.

Date		Topic
January	01/28	Creating a learner centered syllabus
February	02/11	Conducting curriculum mapping for course alignment
	02/25	Exploring best practices in creating assessment and measurement
March	03/25	Using engaging learning materials beyond paperback and PDFs

Attendees will need to complete a workshop evaluation to obtain a certificate of completion. ***Venue: Zoom link and calendar invitation will be emailed.***

Questions?
Contact: CNU ITLE Director, Ashim Malhotra, ashim.malhotra@cnsu.edu

ITLE FACLTY DEVELOPMENT WORKSHOPS

SPRING 2021

OFFICE OF CNU VICE PRESIDENT OF ACADEMIC AFFAIRS

Peer Learning Assistance and Online Support

Dr. Francisco Leite, CHS

Tuesday, February 9, 2021. 12:00 – 1:00 PM

"Is It Hot in Here?" The Learning Climate in Your Classroom

Dr. David-Jull Patterson, PSY

Tuesday, March 16, 2021. 12:00 – 1:00 PM

Strategy, Tactics and Organizational Structure

Dr Vijay Khatri, COM

Tuesday, April 20, 2021. 12:00 – 1:00 PM

Adding Value: A practical (and quick!) approach to oral health assessment

Dr. Sheila Brear, CDM

Tuesday, May 4, 2021. 12:00 – 1:00 PM

A Psychology Toolbox for professor-student interaction – Active Listening, Feedback Sandwich, and the difference between empathy and sympathy

Dr. Andrea Schneider, PSY

Tuesday, May 25, 2021. 12:00 – 1:00 PM

Venue: Virtual session through Zoom.

Questions? Please reach out to Dr. Ashim Malhotra, ITLE Director. Email: ashim.malhotra@cnsu.edu

2. ITLE, INTERPROFESSIONAL EDUCATION AND PRACTICE

High Fidelity Simulation-based IPE Program

2019: Congestive heart failure case, 200 pharmacy and nursing students, CSUS Simulation Center
2019: Acute pancreatitis and alcoholism case, 200 pharmacy and nursing students, CSUS Simulation Center
2019: Acute kidney injury, 200 pharmacy, and medical students

IPE Case Conferences

2022: Headache migraine IPE case conference, 250 medical, pharmacy, and psychology students
2021: Acute coronary syndrome IPE case conference, 200 pharmacy and medical students
2021: Toxicology case-based IPE case conference, 200 pharmacy and medical students
2021: Pre-taped high fidelity simulation of management of acute kidney injury, 200 pharmacy and medical students, converted to an IPE case conference
2020: IPE Grand Round for the management of stroke; 230 pharmacy, medical, and psychology students. YouTube video: https://www.youtube.com/watch?v=IQObjMuaIVM
2020: Medication error IPE case conference, 200 pharmacy and nursing students
2019: Medication error IPE case conference, 200 pharmacy, nursing, and some medical students

3. ITLE, SCHOLARSHIP OF TEACHING AND LEARNING (SOTL)

CNU Grant Writers League, Program Lead: Malhotra A, Vinall R, **2019-present**

2021: Grant writing, an informal "safe space" for junior faculty to bring ongoing writing projects.
2021: Research Grant Mentoring Program – multiple senior funded faculty from each CNU college collaborated to mentor junior and other interested faculty on an ongoing basis.
2021: How to obtain NIH and industry funding as a junior faculty. Shahid M, Chicago State.
2020: New investigator awards and training programs. Vinall, R, Lenhard J, Vyas A.
2020: Federal and state grants; finding appropriate funding mechanisms and writing strong specific aims. Alkhatib G, Shi Y, Lillis J, Glassman P.
2020: Student grant applications. Buckley L, Malhotra A
2020: Grant writing tips and tricks writing a strong research strategy. Desai S, Wetterer C.

ITLE's Health Education Grant Awards (HEGA), Program Lead: Malhotra A, 2019-present

Created a university-wide seed grant program to encourage faculty to create projects focused on the scholarship of teaching and learning; educational projects were incentivized to improve student performance and learning and teaching outcomes.

2019-2020: Six CNU teams from the colleges of medicine, pharmacy, health sciences, and psychology were awarded the inaugural HEGA. Total budget: $3,600. Outcomes: HEGA sponsored SOTL projects enabled faculty win national recognition (Mohamed I. won the ASPET Pharmacology Educators Travel Award and the 2021 AACP Biological Sciences Section Teaching award).
2021-2022: Budget expanded to $10,000 for HEGA.
2021-2022: Seven interdisciplinary CNU teams from the colleges of medicine, pharmacy, health sciences, and graduate studies were awarded the 2021 HEGA.

California Northstate University

Institute of Teaching and Learning Excellence (ITLE)

Office of the VP of Academic Affairs

Announces

Healthcare Education Grant Recipients, 2019-2020

College of Pharmacy	 **Victor Phan, PharmD, CDE** Assistant Professor	 **Matthew Horton, PharmD** Assistant Professor	Assess the Feasibility of Creating an Economically-Viable Virtual Patient Simulation.
College of Medicine	 **Floyd Culler, MD** Professor	 **Mark Sheffield, MD, PhD** Associate Professor	Use of TBL to Stimulate Interactive Skills and Enhance Student Education as an Alternative to Traditional Medical School Lectures.
College of Pharmacy	 **Peter Tenerelli, PharmBS, RPh** Assistant Professor	 **Suzanne Clark, PhD** Associate Professor	Management, Policy, and Leadership Certification Program
College of Medicine	 **John Cusick, PhD** Associate Professor	 **Valerie Gerriets, PhD** Assistant Professor	Determining the Effectiveness of Voiceover Presentations and *Jeopardy!* Review Games.
College of Pharmacy	 **Uyen M. Le, PhD** Associate Professor	**Bichtien Thach, Student** PharmD Candidate, CO 2020	Gaps Between Teaching and Practice in Pharmaceutical Compounding: Currents, Expectations, and Solutions.
College of Pharmacy	 **Islam Mohamed, B.Pharm, PhD** Assistant Professor	 **Welly Mente, PharmD, FCSHP** Assistant Professor	 **Eugene Kreys, PharmD, PhD, BCPS** Assistant Professor	**Yasmin Elsobky, B.Pharm, BCPS** Assistant Lecturer, Egypt	Impact of Decoding Medication Tradenames on Students' Performance and Self-reflection.

Questions? Please contact: Ashim Malhotra, PhD. Director, CNU Institute of Teaching and Learning Excellence. E: ashim.malhotra@cnsu.edu

Faculty Awards and recognition

The College has a variety of internal institutional awards and recognitions for faculty and staff that are offered on an annual basis to recognize service or contribution to the university and/or College. The process for nominating faculty and staff for the awards and identifying recipients has changed over the time period covered by the review, but for the most recent round of awards (see below) faculty and staff could either self-nominate or be nominated by a peer, and recipients were evaluated using a rubric based on specific criteria set forth by the Scholarship and Awards Committee.

AY 2020-2021

2021 Faculty Service & Collegiality Award
Dr. Jeffrey Nehira

2021 Staff Service & Collegiality Award
Kimberly Vongnalith and Melanie Rose (tie)

2021 Teacher of the Year
P1 Dr. Ruth inall P2 Dr. Song Oh P3 Dr. Justin Lenhard

2021 Pharmaceutical and Biomedical Science Researcher of the Year
Dr. Ashim Malhotra

2021 Clinical and Administrative Sciences Scholar of the Year
Dr. Justin Lenhard

*** See Appendix below for full criteria of faculty and staff awards.**

The College's faculty have also been the recipient of a number of external awards and recognitions over the time period covered by the review. Please see the section under "faculty productivity: research and scholarship".

Faculty satisfaction

The American Association of Colleges of Pharmacy (AACP) conduct faculty surveys each year for voluntary completion. Anonymized results are published in table form and findings can be benchmarked against national data and comparator institutions, including public or private universities. The response rate for the 2014 survey was very low, so special efforts were made in 2015 and 2016 to highlight the importance of the survey and to encourage a higher response rate (Table 13). Response rates improved considerably for 2015 and 2016, and in fact exceeded comparator private universities nationally (79% and 81% respectively).

Table 13: CNSU internal and AACP Faculty Surveys: 2013 – 2015

	2013	2014	2015	2016
AACP Faculty Survey	NA	12/31 (39%)	33/35 (94%)	25/26 (96%)
COP College Survey	N = 19/21 (90%)	N = 18/24 (75%)	N = 23	19/27 (70%)

The AACP survey includes 65 Likert questions divided into 6 sections covering satisfaction with topics such as faculty development, the administrative system, roles and governance, curriculum, teaching and assessment. Summary results from the latest 2016 Faculty Survey for COP are provided in *Appendix 20*. Statements about the PharmD curriculum, teaching and assessment, and statements about developing and supervising students, received high levels of agreement (80-100%), signifying high satisfaction with these aspects of the program. Some areas received lower and less favorable ratings, including aspects of administration and governance, promotion and tenure, workload, and faculty and staff resource.

Sample Faculty Satisfaction Survey Results, 2018-2020

The faculty response rate was very high at 100% in 2019 and 2022, above the pertinent comparators and up from 53% in 2019 suggesting the positive impact of the increase in faculty morale at the College due to the number of positive changes. Some examples include the promotion of faculty, two in the 2019-2020 cycle from Associate Professor to full Professor, Dr. Leo Fitzpatrick, and Dr. Tibebe Woldemariam, and one from Assistant Professor to Associate Professor, Dr. Olivia Phung. Also, in the academic year 2020-2021, three faculty were promoted, all three from the rank of Assistant Professor to Associate Professor, Dr. Tony Eid, Dr. Welly Mente, and Dr. Justin Lenhard.

In addition to faculty promotions, faculty were also supported by a variety of initiatives in a number of areas. Examples include enhanced mentoring, with mentor-mentee pairs formed for the short-and-long-term, continuous faculty development, and professional programming both at the level of the College of Pharmacy and also at the university level, the latter through the Institute of Teaching and Learning Excellence established in 2018. As reported elsewhere, professional development activities at the College included teaching and technology training focus, especially during the time of the COVID-19 pandemic.

Overall, the results of the survey have been fairly positive and similar to the comparators

- The following questions demonstrated above average results
    - #8. The assessment processes are effective.
    - #20. I receive guidance on career development.
    - #21. Funds are available to support faculty development.
    - #22. Programs are available to orient non-practice faculty to the pharmacy profession and professional education.
    - #24. Programs are available to develop competence in research and/or scholarship.
    - #34. The curriculum is taught at a depth that supports understanding of central concepts and principles.
    - #40. The college/school has an effective process to manage poor academic performance of students.
- The following questions demonstrated below average results:
    - #15: 61% agreed or strongly agreed with "my allocation of effort has been clearly stated", 20% below national average and in a downward trend
    - #25: 65% agreed or strongly agreed with "The college or school has a sufficient number of staff to effectively address programmatic needs", 2% above national average but in a downward trend
    - #43. 36% felt that "In my opinion, the proportion of my time spent on service is too much," 15% above national average.
- While similar to the national averages a downward trend was observed for the following questions:
    - #1. The college/school's administrators (e.g., Dean, Associate/Assistant Dean, Department Chair, Program Directors) have clearly defined responsibilities.
    - #2. The college/school's administrators function as a unified team.
    - #3. The college/school's administrator(s) are aware of my needs/problems.
    - #38. The college/school has an effective process to manage academic misconduct by students (e.g., plagiarism).
    - #39. The college/school has an effective process to manage professional misconduct by students (e.g., repeated tardiness/absences, drug diversion).

12. The college/school requested my input during the development of the current strategic plan.	89%	100%	94%	87%	87%	85%	87%	88%	0%
13. I have access to documents that detail policies related to my performance as a faculty member.	96%	100%	100%	94%	91%	90%	92%	93%	3%
14. My performance assessment criteria are explicit and clear.	82%	89%	69%	87%	83%	81%	85%	88%	5%
15. My allocation of effort has been clearly stated.	86%	78%	59%	61%	81%	79%	83%	84%	-20%
16. Criteria for my performance assessment are consistent with my responsibilities.	82%	89%	75%	74%	81%	80%	83%	85%	-7%

17. I receive formal feedback on my performance on a regular basis.	86%	100%	78%	81%	83%	82%	83%	87%	-2%
18. The performance feedback I receive is constructive.	86%	89%	75%	87%	83%	82%	84%	85%	5%
19. The college/school consistently applies promotion and/or tenure policies and procedures.	64%	56%	41%	65%	77%	76%	80%	81%	-13%
20. I receive guidance on career development.	79%	83%	78%	81%	69%	68%	73%	74%	12%
21. Funds are available to support faculty development.	96%	100%	88%	94%	75%	79%	87%	90%	18%
22. Programs are available to orient non-practice faculty to the pharmacy profession and professional education.	82%	83%	63%	77%	54%	56%	58%	63%	24%
23. Programs are available to improve teaching and to facilitate student learning.	96%	100%	97%	97%	89%	89%	91%	92%	8%
24. Programs are available to develop competence in research and/or scholarship.	82%	100%	88%	87%	74%	70%	76%	70%	13%
25. The college or school has a sufficient number of staff to effectively address programmatic needs.	79%	83%	75%	65%	62%	59%	72%	69%	2%
26. Faculty office space permits accomplishment of my responsibilities.	100%	100%	97%	94%	93%	93%	90%	91%	1%
27. The college or school has resources to effectively address research/scholarship needs.	79%	89%	78%	74%	70%	67%	72%	66%	4%
28. The college or school has resources to effectively address instructional technology needs.	86%	89%	84%	74%	84%	82%	88%	86%	-10%
29. The college has physical facilities to effectively support academic program needs.	93%	95%	94%	87%	84%	85%	82%	84%	3%
30. The college/school has a sufficient number of faculty.	75%	61%	72%	71%	64%	61%	66%	71%	7%
31. My campus work environment is safe.	100%	100%	100%	97%	94%	95%	93%	92%	2%
32. The organization and structure of the curriculum is clear.	96%	100%	91%	87%	87%	88%	88%	90%	0%
33. I understand how my instructional content fits into the curriculum.	96%	100%	97%	97%	93%	95%	91%	95%	4%
34. The curriculum is taught at a depth that supports understanding of central concepts and principles.	96%	100%	97%	97%	87%	87%	87%	88%	10%
35. Curricular collaboration among disciplines is encouraged at my college/school.	96%	95%	97%	87%	88%	88%	90%	91%	-1%
36. The college/school uses programmatic assessment data to improve the curriculum.	93%	100%	91%	90%	83%	83%	86%	92%	7%
37. The college/school provides an environment and culture that promote professional behavior among students, faculty, administrators, preceptors and staff.	89%	78%	91%	81%	88%	87%	90%	88%	-8%
38. The college/school has an effective process to manage academic misconduct by students (e.g., plagiarism).	93%	100%	91%	81%	83%	81%	84%	86%	-2%
39. The college/school has an effective process to manage professional misconduct by students (e.g., repeated tardiness/absences, drug diversion).	97%	100%	88%	77%	78%	76%	77%	78%	0%
40. The college/school has an effective process to manage poor academic performance of students.	89%	100%	91%	90%	80%	80%	84%	88%	10%
41. In my opinion, the proportion of my time spent on teaching is too much	4%	11%	28%	16%	18%	19%	21%	22%	-2%
42. In my opinion, the proportion of my time spent on research is too little	25%	17%	41%	36%	30%	37%	32%	39%	6%
43. In my opinion, the proportion of my time spent on service is too much	18%	33%	44%	36%	21%	23%	18%	21%	15%
44. In my opinion, the proportion of my time spent on clinical service is appropriate	36%	39%	41%	48%	44%	47%	45%	46%	4%

3. Program viability and sustainability

a) Demand for the program

b) The 2019 ACPE Site Visit resulted in recommendations to monitor recruitment strategies, class size, and admissions GPAs. While the College has substantially enhanced its recruitment strategy as outlined below, data obtained from PharmCAS has been continually employed to monitor applications for admissions. For example, according to AACP's PharmCAS volume report for the 2019-2020 admissions cycle from March 2, 2020, the percentage of submitted applications to pharmacy programs has declined by 28.8% over the past year. Appendix 16.5

Over 95% of pharmacy programs in District 8, which includes Arizona, California, Colorado, Guam, Hawaii, Nevada, New Mexico, and Utah, have experienced a decrease in applicants. CNUCOP has experienced a similar decline in applications as that observed within the state and nationwide. The same report from a later timepoint, although continues to demonstrate a competitive admissions market in California, it was encouraging that many more students chose to attend CNUCOP, as a result of our aggressive efforts in building recruitment, marketing, and promotion strategies, coupled with our gradually increasing positive footprint in the community.

According to PharmCAS, the mean number of applicants is 252 nationwide, while CNUCOP had 420 total applications. The mean number of applicants per program for private schools is 257.4. Our enrollment trend is better than the national average. Appendix 16.5

c) Admissions: Enhanced Recruitment and Marketing Strategies. Multiple approaches were adopted in AY 2019-2020 to boost stakeholder confidence, enhance CNUCOP's community footprint, and strategize student recruitment. At the administrative level, CNUCOP leadership invested in the creation of the new Office of Curriculum and Program Development (OCPD). The Assistant Dean of CPD (AD-CPD) is charged with the creation of innovative and sustainable programs to promote the long-term growth of the College and to enhance its community impact. This restructuring enabled the AD-CPD to leverage support from the Admissions and Outreach Advisors to enhance recruitment. Appendix 16.6

Current initiatives to bolster applications include:

i. augmented branding and marketing strategies such as an overhaul of the CNUCOP Website, Appendix 16.7 creation of a CNUCOP YouTube Channel emphasizing student life and academic experiences. Appendix 16.8

ii. enhanced financial support through "Early Decision" and merit-based scholarships, Appendix 16.9

iii. plans to enhance alumni participation in interview days, commencement, and white coat ceremonies.

iv. expanded community service, citizenship, and advocacy for the profession of pharmacy, for example, through our project to provide free

hand sanitizer during the COVID-19 pandemic to community hospitals and rotation sites, Appendix 16.10 and the creation of the CNUCOP Capital Leadership Forum where CNUCOP brings relevant and timely issues concerning advocacy for the profession and the expanded role of pharmacy. Appendix 16.11

v. fostering partnerships with high schools, four-year and community colleges. Appendix 16.12

The process of recruitment has been expanded to include CNUCOP clinical and foundational sciences faculty along with Pharm.D. student ambassadors at local events.

Applicant data/yr of admission	2008	2009	2010	2011	2012	2013	2014	2015	2016
# of applications	344	1784	1839	1795	1588	1385	1361	1112	1116
# interviewed	207	400	363	329	442	382	420	368	533
# of offers	136	177	198	231	382	292	349	313	510
% of interviews to applicants	60%	22.4%	19.7%	18.3%	27.8%	28%	31%	33%	48%
% of offers to interviewed	66%	44.3%	55.6%	70%	86%	76%	52%	85%	96%
% of offers to matriculants	65%	51%	50.5%	46%	28%	39%	35%	22%	25%
Number admitted	89	90	100	106	107	114	121	68	126

Beginning in 2015, the Bachelor's degree requirement was removed. This decision was reached and approved by faculty after a detailed review was undertaken, led by the Office of Academic Affairs of published research reporting links between student achievements and performance at admission with subsequent performance on the PharmD program. Requirements of competitor institutions were also evaluated and faculty agreed to adjust the College's admissions criteria. Thus, the psychology and economics pre-requisite courses were removed, since a number of other pharmacy programs within California did not require these pre- requisite courses. One year of English Composition coursework was added to our pre-requisites to ensure all students were proficient in college-level English reading and writing. Making the PCAT a mandatory requirement was voted against since no other California program required it. The current admission requirements are included in *Appendix 21*.

In addition to changes in pre-requisite coursework, some modifications were made to streamline the admissions process. Before 2015, the admission advisors reviewed applications and subsequently invited qualified applicants for onsite interviews. Faculty review of the applications did not occur until after the onsite interviews had been completed. For the last two rounds of admissions, the admission advisors verify that each application is complete and then assign faculty to provide pre-interview rubric screens, which are conducted electronically on WebAdmit, for each applicant. Faculty then determine if the applicant should be invited for an onsite interview and have the opportunity to identify any "red flags," which require additional review by the Admissions Committee.

Prior to 2015 onsite interviews had previously been conducted every four to six-weeks starting in late September of each year. Beginning in the 2015-2016 admissions cycle, onsite interviews are now scheduled to start in early Fall (late August or early September) and are held more frequently (every 1 to 2 weeks). Prior to 2015, the Admissions Committee met to review the applicants three to four weeks after each interview, and then determined if an offer of admission

should be made. This process has been streamlined and now all applicants are voted on within three days after the onsite interview; students who are accepted into the program are offered admission within 7 to 10 days after the onsite interview.

Over the past few years, adjustments have also been made to the composition of the actual interview day. Beginning in 2014, a presentation from the Experiential Education Department was added to the itinerary for each interview day, to enable more information to be provided regarding IPPE and APPE rotation requirements. Additionally, in 2015, a presentation from the Financial Aid Department was added to each interview day and starting in 2016, presentations by the Office of Student Affairs and Office of Research, which provided information on student services and research opportunities, respectively, were also added to the interview day itinerary. Additionally, the multiple mini-interview format was adapted for onsite interviews beginning in 2015 to better evaluate applicants' critical thinking skills and to enable more faculty to interview and evaluate each applicant. Applicants also undertake a writing exercise as part of the assessment of their communication skills.

Prior to 2015, few efforts were made to ensure that the students who confirmed with the College would maintain their interest in the program. Beginning in 2015, in an effort to retain students who have confirmed their enrollment, our Outreach and Admissions Advisor began to hold *meet-and-greets* periodically throughout different geographical areas within California. These *meet-and-greet* events serve as opportunities for incoming students to meet with an admissions advisor in a small-group setting and to meet with other incoming students to begin to establish relationships. The new Admissions process was the subject of a poster presentation at a recent professional meeting and a subsequent paper.[4]

In 2015 the College introduced an on-line survey administered to interviewees to ascertain the College's strengths and weaknesses regarding the interview process, their experiences on interview day, and subsequent follow up. Summary results from the 2015-2016 survey and action plan for 2016 are in *Appendix 22*. The findings overall were generally positive; however comments from 45% of those who replied suggested that interviews with Faculty were too short. In 2016 interview times were therefore increased to allow applicants more time to 'showcase' themselves and ask questions of the faculty or student interviewing them. Other areas for improvement were identified, including providing an itinerary 48 hours in advance of the interview day, and having faculty join the interviewees for lunch.

In 2016 the College also administered a survey to applicants who declined an admissions offer to ascertain their reasons for not accepting a place and to gather evidence for making changes to the admissions process or cycle. Location of the campus and lack of federal financial aid were the two main reasons identified by these applicants for turning down an offer, but comments from some also suggested speedier decisions by the College would assist students. For this years' admission cycle changes were made which included providing students with an admission decision within one week of their interview.

d) Faculty resources

i. Number and rank

Currently the College employs 29 faculty. The majority of faculty work full-time, 6 work part-time. Most of the associate professors are based in the PBS department, while the majority of assistant professors are based in the CAS department. The student:faculty ratio is 13.6:1 (312 P1 – P3 students and 22.9 FTE faculty with advisor duties).

Table 15: Summary of Current Faculty Rank – @ December 2016

Rank	Headcount - CAS	Headcount - PBS	Headcount - EED	Headcount - all
Professor	2	1	0	3
Associate Professor	1	8	1	10
Assistant Professor	7	2	3	12
Instructor/Adjunct	4	0	0	4

Presently 25 faculty professors have their own individual office, while 4 part-time adjuncts/instructors share. Each office is private allowing for the faculty to meet with and advise their students. Faculty have office hours on campus, which are stated in the course syllabi, and are also available by email. Staff also have individual offices. Each office is equipped with a computer linked to the internet and to workroom printers.

ii. Faculty retention

While the College maintains appropriate numbers of faculty in specialized subject areas that are needed to deliver the program, this has not been without challenge, as table 16 shows:

Table 16: Summary of Faculty Hire & Separation Data

Year	# Hired	# Separated
2007	4	
2008	5	-
2009	6	-
2010	7	-
2011	10	1
2012	3	2
2013	8	6
2014	10	6
2015	6	15
2016	8	8

The College recognizes that some turnover is inevitable, with some of the departing faculty moving on to higher ranking academic positions in new Pharmacy Colleges elsewhere; occasionally some turnover is also desirable and beneficial to the healthy functioning of the

college; turnover also 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, the College nevertheless has experienced higher than usual turnover over the last two years, and is currently exploring how to improve retention on the one hand, and how to improve recruitment on the other. The university is currently implementing its 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, 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 already large number of faculty development opportunities.

Actions aimed at improving retention have thus far resulted in some improvements, with the number of faculty departures in 2016 half that of the previous year's. The institution prides itself on the high caliber of its faculty and seeks to attract and retain excellent faculty who are focused on cultivating best practices in teaching and learning; hiring committees are working with Human Resources to incorporate behavioral interviewing techniques to improve vetting for strength of faculty commitment to student success.

iii. Workload

An ad hoc committee was established at CNUCOP in 2014 and was tasked with developing a mathematical model for calculating faculty workload. Results from this workload analysis demonstrated that the faculty allocation of effort for the Pharmaceutical and Biomedical Sciences Department was 39%, 34%, 22%, and 5% for service, teaching, scholarship, and professional development, respectively. Faculty allocation of effort for the Clinical and Administrative Science department was 24%, 39%, 18%, 14%, and 5% for service, teaching, clinical practice, scholarship, and professional development, respectively. A scholarly paper[5] detailing the workload analysis procedures and key results has been published in the American Journal of Pharmaceutical Education (AJPE).

Overall, this workload analysis demonstrated relatively equitable load, but with a need to ameliorate College service burdens among faculty as well as innovate strategies to provide faculty with longer periods of protected time for the pursuit of scholarly activities. In an attempt to reduce the amount of time dedicated to service, College administration has reduced committee involvement for faculty by reducing both the number of committees and the number of faculty serving on each committee.

Several faculty have departed the College since 2015 which resulted in an increase in teaching load for the remaining faculty. In general, faculty in clinical practice are expected to teach 60 contact hours per academic year. The contact hour requirement for non-clinical faculty and administrators are 90 hours and 30 hours, respectively. The College is aggressively recruiting new faculty to reduce the teaching load among current faculty.

The College recognizes that comprehensive workload analysis should be conducted on a regular

basis. Discussion regarding the frequency of workload analysis is currently ongoing. It should be noted that while workload analysis conducted using the mathematical model described earlier provided useful information on workload distribution, this process was very time consuming. A simplified analytical method is currently used by the College so workload analysis, and any necessary adjustments, can be made on a more regular basis.

iv. Faculty annual performance review

The performance of faculty and staff has been evaluated annually since the College's inception. The annual evaluation form however, was amended in 2016 to strengthen the process by obtaining more specific feedback from different constituents throughout the academic year. The revised form was shared with faculty for their input. The final approval was obtained from the Dean's Executive Committee (DEC) before implementation. The process is initiated with the faculty's self-evaluation and proceeds by submission of their part of review to the Department Chair according to an established timeline. During the individual meeting with the Department Chair, the faculty's accomplishments, strengths and needs for improvements in the areas of teaching, scholarship, service and collegiality, based on performance during the previous academic year, are reviewed, discussed, documented, and agreement reached about short (one year) and a long term (five year) goals. The Department Chair then includes a narrative summarizing the overall evaluation and performance and a recommendation for contract renewal is made. The final step of the process is to review the evaluations' documents with the Dean. The completed form, with signatures from the faculty member, Department Chair and the Dean is submitted to the Office of Human Resources and an electronic copy is shared with the faculty and the Office of the Dean. (Please see *Appendix 23* for the Faculty Annual Performance Evaluation Form).

A similar procedure is implemented for staff annual evaluation.

In 2015 and 2016, all faculty and staff evaluations were completed by the Department Chairs and submitted to the Dean and subsequently to the Office of Human Resources by April 15.

v. Peer observation of faculty teaching

To assist individual faculty members in identifying strengths and weaknesses, and to enhance their teaching skills, faculty are also evaluated by their peers. Starting in 2011, these reviews have taken place every year since. Each faculty is peer-reviewed once a year, in whatever semester the majority of their teaching takes place. The peer observation form was revised in Fall 2016 to enhance feedback specific to TBL delivery, and to ensure proper documentary evidence was in place to feed into the Annual Performance Review in April. At the beginning of each semester, a schedule with the date of the observation and the reviewer's name is created by the Office of Academic Affairs with input from the Department Chairs. The process is as follows:

- The observed faculty provide all the pre-class materials to the observer at least one week in advance of the observation date.
- The observer attends the class for its entire duration on the day of observation and may ask students questions to ascertain whether the class is representative of the faculty delivery.

- Upon completion of the observation, the observer and faculty meet to review and discuss the feedback.
- A copy of this completed review form is shared with the observed faculty, Office of Academic Affairs and the respective Department Chair no later than one week after the observation.

In general, most faculty earn a 'developed' to 'proficient' rating in the majority of areas of teaching. Classes are well-organized and start promptly, adequate guided reading is provide in a timely manner. The fundamental concepts are re-emphasized during the readiness assurance tests and in-class application exercises are written in a manner to promote in-depth discussion of the subject matters. Students are encouraged to engage in team and class discussion. In most cases it appears that students feel comfortable asking questions and can speak freely. In the 2015-2016 academic year evidence suggests there was an improvement in TBL facilitation across all classes, arguably due to the effectiveness of the internal TBL workshops organized for faculty and the support for faculty to attend educational conferences on active teaching and learning. However, encouraging students' participation in class discussion and diversifying the type of application exercises were the area of improvements identified most frequently. These two concerns will be addressed when the next TBL training workshops are scheduled. (See *Appendix 24* for a copy of the Peer Teaching Observation Form).

Faculty Mentoring

The College formed an Orientation, Mentoring and Faculty Development Committee in 2012-13 with the remit to devise an on-boarding and orientation process for new College faculty and staff, and to explore whether a mentoring program was required and what it would entail. Orientation sessions were developed and organized first by the College for all new faculty and staff; the orientation process for new staff was later subsumed into the institutional HR department, but faculty are still on-boarded via activities scheduled by the Committee, with sessions from HR included. With input from faculty the Committee went on to design a mentoring scheme which was voted on and approved by Faculty in 2015 (see *Appendix 25* for mentoring forms).

All faculty members hired after July 2015 have been offered short term mentors and were encouraged to choose long term mentors after 6 months of their starting date. Some faculty members have chosen internal mentors and others preferred to continue with their external mentors. The senior Faculty members were also encouraged and given the chance to get involved in long term mentoring and coaching. A list of mentees and their respective internal and external mentors is included in *Appendix 26*. Mentorship efforts are considered as part of the mentors' service to the College and is considered in the Annual Activity Review.

e) Resources: Student support

The College offers students support in a number of ways. This section deals with the support systems and processes that are in place to help students whose academic performance becomes a concern. There is a clearly defined Academic Progression Policy (*Appendix 10*) in place to ensure program integrity, which is shared with the students through the College website, presentations during orientation and it is reproduced in the student handbook. The Policy stipulates what occurs when student's academic performance falls below recognized standards.

Academic support programs typically include remedial (reactive) and pre-remedial (proactive) approaches. The College has a range of programs aimed at helping struggling students that include both remedial and pre-remedial approaches. The range of established remedial measures include academic alerts, individual tutoring, and remediation following final exams.

14.1 Introduction and Process Development. Following the 2019 ACPE site visit, the Office of Student Affairs and Admissions (OSAA) collaborated with many stake holders within and external to the College to address the concerns identified in the 2019 AACP Graduating Student Survey. Appendix A A variety of new programs were created as a result of this effort and many existing programs were further enhanced to improve these areas of student services. Our initiatives are outlined below in detail in the three categories of career services and counseling, student advisement, and health and wellness, as required by guidance included in the ETR. Student concerns regarding financial aid advising are addressed earlier in this report under Standard 9.

142. Career Services and Counselling. Following the Site Visit, the OSAA established and implemented a learner-centered "Professional Career Development Program" (PCDP) to assist

students in identifying their professional goals and supporting the achievement of these goals. The PCDP was effectuated through:

14.2.1 The Professional Career Development Program. PCDP's initial series of lectures (PCDS) related to professional development. Appendix 14.1 As noted in Standard 4, PCDS sessions facilitated career development skills such as writing an effective resume, CV, cover letters, and "thank you" notes, a residency readiness workshops, and round-table discussions for developing students application, interviewing tips & networking skills. Appendix 14.2 & Appendix 14.3 During PCDS the Career Pathways Series, experts in various areas of pharmacy were invited from different pharmacy specialty backgrounds to broaden students' exposure to diverse career pathways within pharmacy.

14.2.2 The PCDP's Career Pathways Series. OSAA's ongoing career support services includes annual student-centered career events, and a "Graduate

Interview Day" for P4 students to practice interview skills in mock-interview events and also interviews with companies for potential pharmacist positions Appendix 14.1

14.2.3 Adoption of the electronic portfolio system (e-Portfolios). E-portfolios help track student development. Appendix 14.9 In AY 2019-2020, OSAA developed and implemented the "CNUCOP Student E-Portfolio System" to encourage learners to:1) self- assess professional and personal development, 2) cache "signature assignments" and self- reflections, 3) self-identify strengths and opportunities for growth, 4) create an action plan for further skills development, 5) strengthen the advisor-advisee relationship by facilitating frequent meetings, and 6) enhance written communication skills. Faculty advisors are tasked with reviewing each advisee's e-Portfolio. All students are required to upload to MyCred (through CORE ELMS) documents related to the PCDPS, COCULOs, individual CVs/Resumes, cover letters, certifications and licensures, work experience, and experiential rotations, as well as the college's signature assignments and self-reflections.
Appendix 14.3

14.3 Health and Wellness.

14.4.1 Establishing a CNUCOP Student-Focused "Health and Wellness Committee". CNCUOP created a Health & Wellness Committee (HWC) comprised of students, staff, and faculty Appendix 14.6 to promote a culture of physical, social, and emotional well-being through campus-wide events. The committee identified needs that have been addressed through new programs such as "World Mental Health Day", "Anxiety Management Workshops," a "Time Management Workshop," cross-training classes to support mental and physical well-being, and creation of a "safe space" for students to share their passions and express themselves emotionally. Appendix 14.5 & Appendix 14.10

In addition, the HWC established a process for student referral to mental health counseling. In support of the counseling office, faculty advisors are trained on how to refer a student to counseling services. Students can contact the counselor directly or a faculty or administrator can contact the counselor on the student's behalf after receiving permission from the student to do so.

14.4.2 Enhancing CNUCOP Student Access to Counseling Services. In AY 2019-2020, CNUCOP developed plans to enhance student awareness, access, and support services in collaboration with the University Counseling office. The counselor's contact information and hours of service were shared with faculty, staff, and students on a regular basis and were posted in common areas within the COP. Appendix 14.11 In addition, the University expanded its free, on-site, professional, HIPAA-compliant, and secure counseling services. Importantly, during fall 2019, in-person counseling sessions for all CNU community were increased and continued through the COVID-19 pandemic in spring 2020 via secure telehealth video and telephone services. Appendix 14.11

14.4.3 CNUCOP Sponsored Third-party Counseling Contract. CNUCOP provides an additional student support service, called Talk One2One Student Assistance Program from AllOne Health. This student wellness program is fully supported by the Dean's Office, and aims to enhance student well-being. The program offers structured help for students in a variety of areas associated with stress such as creating "to do lists", coaching to assist students in identifying their goals, mental health counseling on a variety of issues such as family conflict, couples/relationships, substance abuse, and anxiety and depression, medical advocacy, legal/financial resources, and work/life resources. This service is particularly relevant to help our student body during the ongoing pandemic. Appendix 14.12 and Appendix 14.17

Individual tutoring support for students

The tutor service program offered to students experiencing academic difficulty continues to be one of the most successful student services at the College of Pharmacy (COP). The Associate Dean of the COP Office of Student Affairs implemented the tutoring service program in 2009 as a support service. Tutoring services are provided to individual students and small groups.

The individual and small group tutoring service is available to students who have been placed on academic alert for a course or course(s). Students on academic probation can be paired with a tutor proactively, so that help is provided to *prevent* academic difficulty, rather than waiting for an academic alert to be triggered. Students on academic alerts are notified they are eligible for the service and can elect to participate or decline the service assistance. A majority of students elect to receive the service. The individual and small group tutoring service has been provided by peer tutors nominated or recommended by course coordinators. The tutors are paid a small fee from student service funding. The number of hours a student tutor can provide this service has been capped to insure the tutor does not experience academic difficulty with their own coursework.

Table 25 below shows data for the tutoring service program for the past two years. The rate of students receiving tutoring services who successfully complete the course has been very high. Unfortunately there are a few who continued to struggle with understanding the concepts. Some of these students were put on academic probation and into a five year program. Students who failed the course outright, or failed remediation and who did not meet the standards of the COP progression policy were dismissed from the program. The COP plans to continue the individual and small group tutoring service to help support and provide assistance for student success.

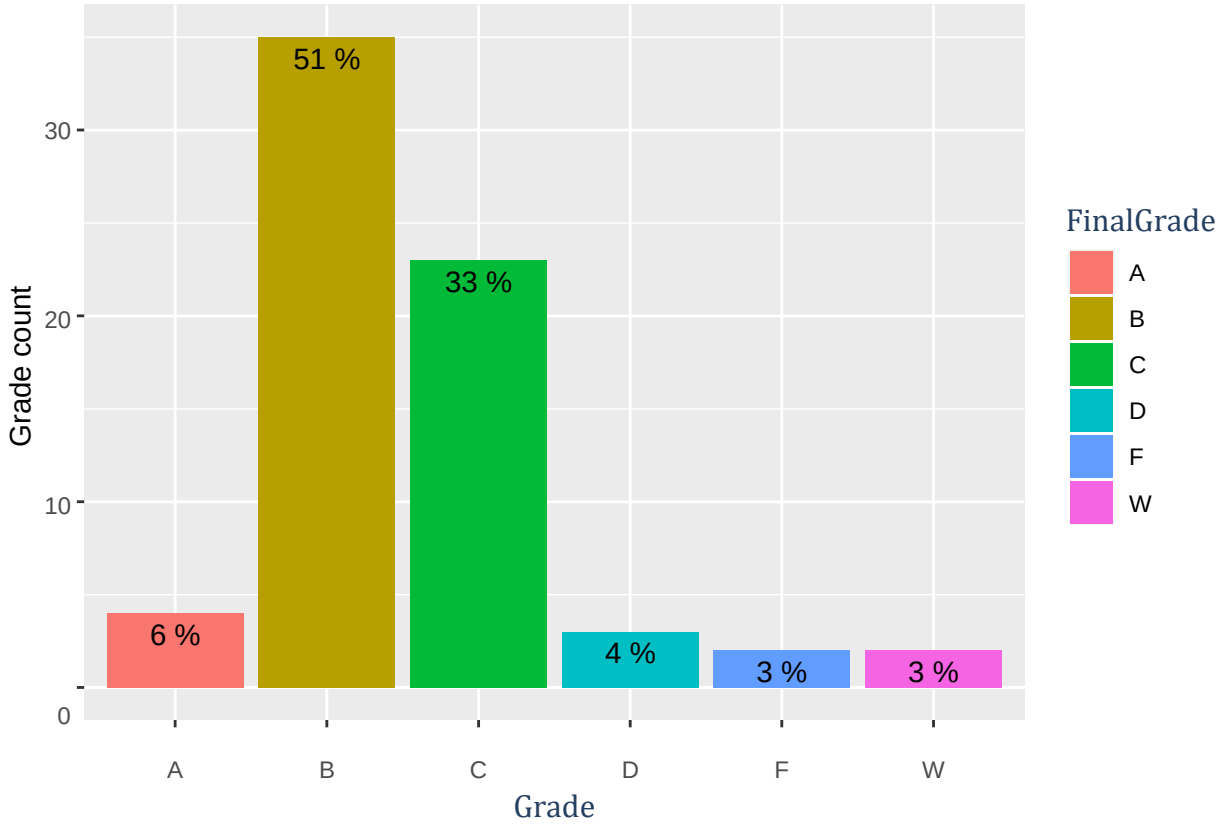
Table 25: Tutoring service use and outcomes 2014-16

Semester/Year	Number of Students placed on Academic Alert	Tutoring Service Participants	End of Semester Outcome for those who received tutor support
Fall 2014	124	114	Pass – 112, Probation – 0, Dismissed – 2
Spring 2015	105	95	Pass – 92, Probation – 0, Dismissed – 3
Fall 2015	60	56	Pass – 52, Probation – 4, Dismissed – 0
Spring 2016	87	37	Pass – 36, Probation – 0, Dismissed – 1

Relationship of final grades vs. activities (meetings, individual hours, group hours)

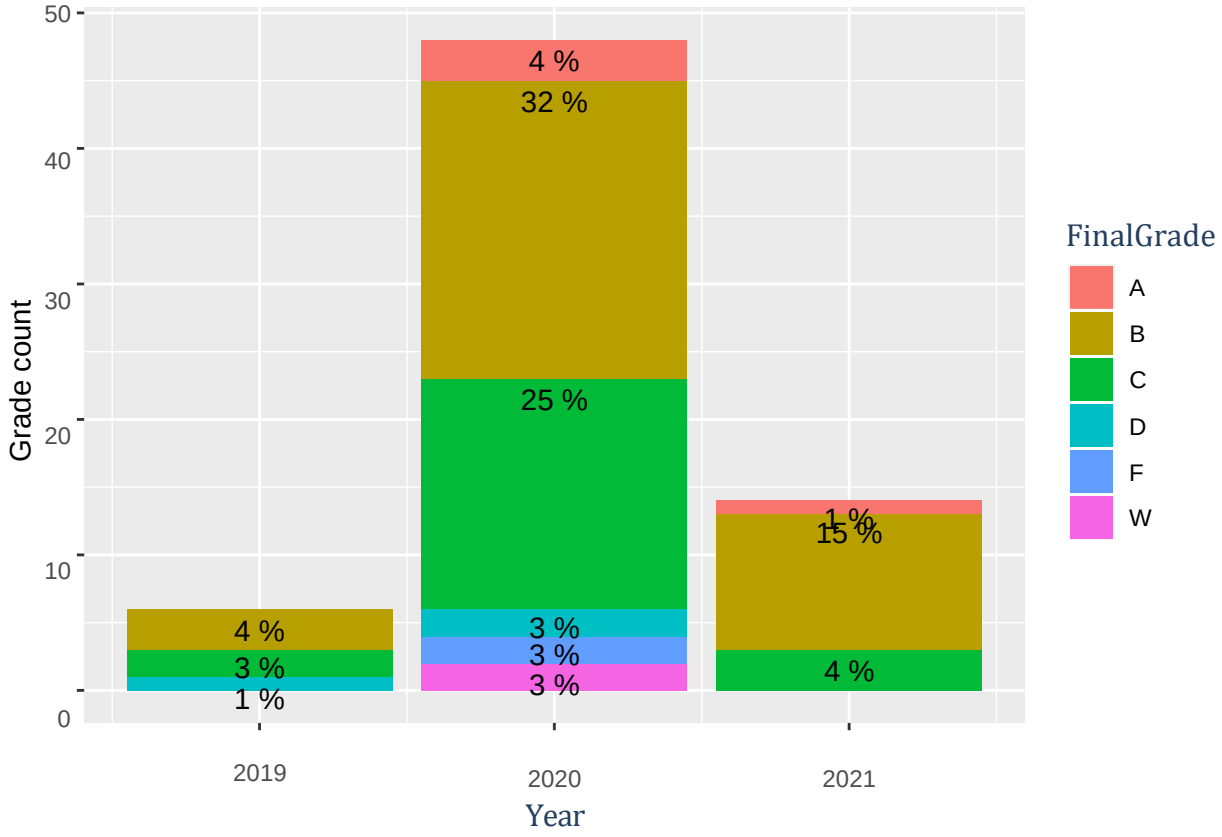
Summary of final grades of students who participated in the tutoring is plotted in the figure be- low. 90% of the students have successfully completed the courses with grades of C or above.

Grade distribution

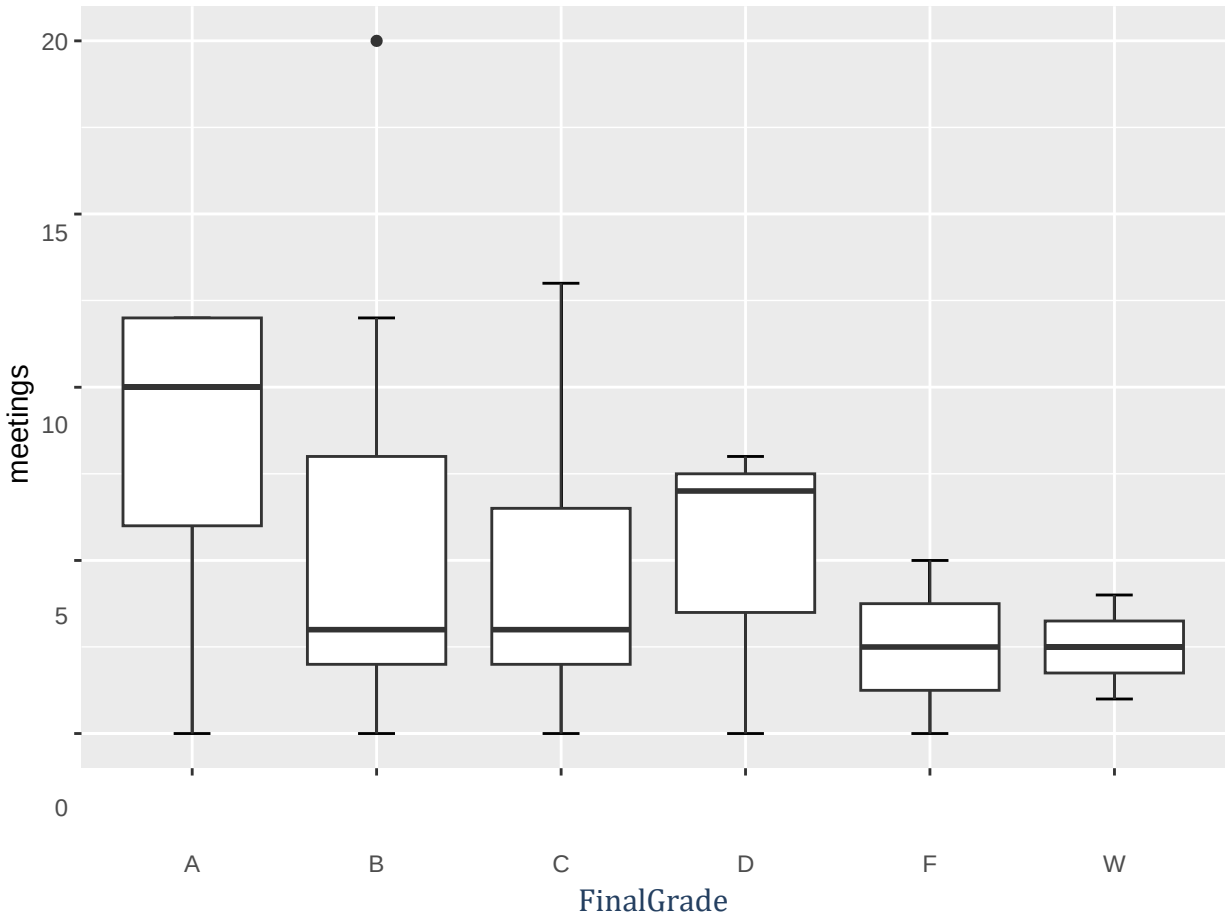


Classs of 2020 had the most number of tutoring sessions (70%) whereas class of 2019 had the least (8%).

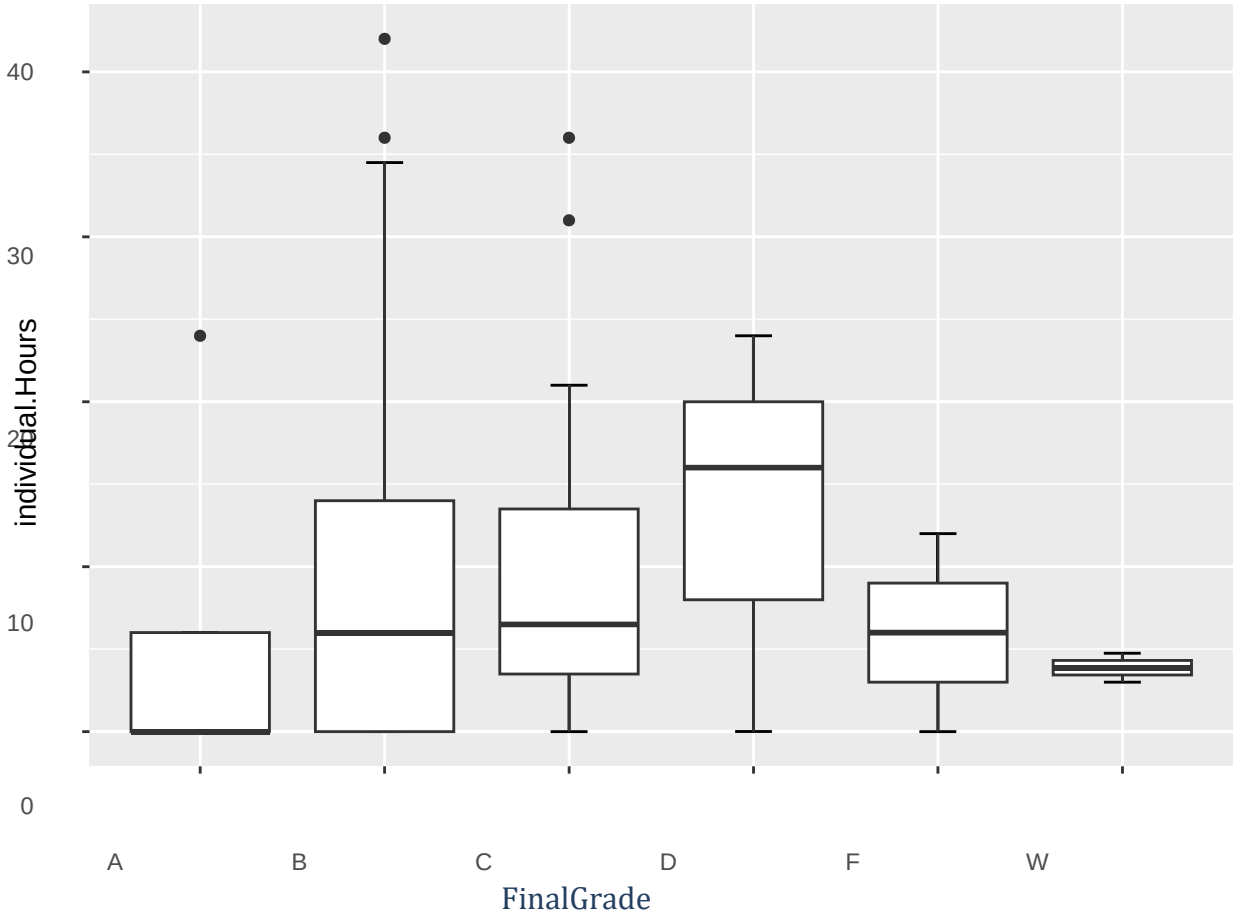
Grade distribution vs. class year



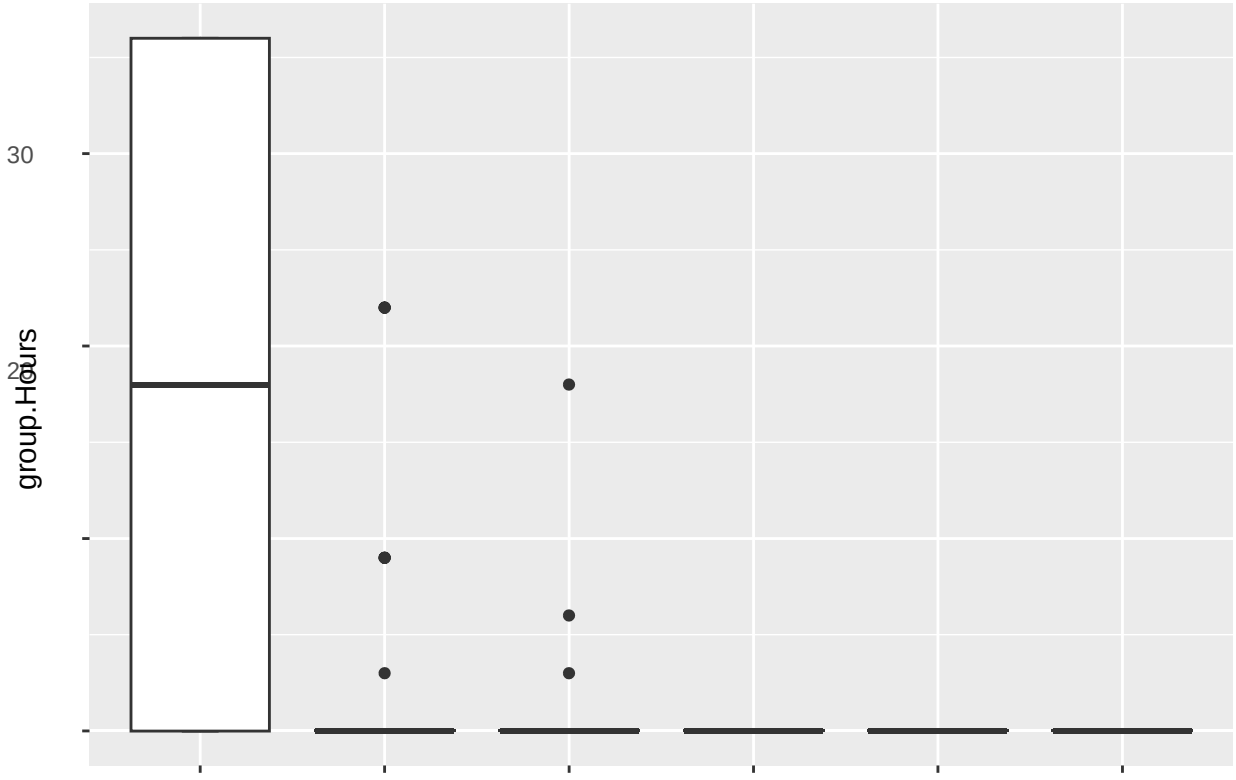
It seems that students with final grade A had the most number of meetings compared with other groups.



There is no clear evidence on more individual hours resulted in a better final grade.



However, we do see that students spent more time within group study resulted in higher final grades.



Classroom supplemental instruction support

Background: Academic support programs typically include remedial (reactive) and pre-remedial (proactive) approaches. California Northstate University College of Pharmacy (CNUCOP) has a range of programs aimed at helping struggling students that include both remedial and pre-remedial approaches. Before 2015, the CNUCOP provided a range of remedial measures, including academic alerts, individual tutoring for at-risk students, and remediation following final exams. These are now well established and standardized. However, these measures are predominately reactive, in that they are triggered after a student earns a poor grade on an exam or project. In order to provide proactive, pre-remedial academic support, in January of 2015 a program was launched based on Supplemental Instruction (SI).

History and Principles of Traditional SI Programs: SI was developed in 1973 at the University of Kansas City, Missouri (UKCM) and is now is used in undergraduate programs across the US. SI has been used in medical and dental professional programs, but there are few published reports of SI in PharmD programs (Maize, et al., 2010; Mosely, Maize and LaGrange, 2013. Attridge, et al., 2017).

Whereas tutoring programs typically target struggling students, SI targets difficult courses. SI often is offered for science and math courses with a history of frequent Ds, Fs, or withdrawals ("high DFW" classes), especially large freshman and sophomore classes. In most programs, SI sessions are peer-led by students ("SI Leaders") who previously earned a high A in the class, although one PharmD program has reported on SI programs that are faculty- lead (Mosely, Maize and Lagrange (2013); Attridge, et al., 2017). SI Leaders have a higher degree of autonomy than typical tutors or teaching assistants (TAs), in that they usually work under an SI office or teaching and learning center (instead of working directly for the course coordinator, as a TA). In most undergraduate programs, SI Leaders are required to attend classes for which they offer SI, to hold regularly scheduled SI sessions, and offer office hours. At most undergraduate programs SI sessions usually are open to all students, not just those who are struggling; this helps to reduce the stigma of attending tutoring or academic assistance programs, so that all students feel welcome to attend and see benefit in attending.

We have adapted the traditional peer-lead, open, voluntary attendance SI approach to our Doctor of Pharmacy (PharmD) program. Our CNUCOP Supplemental Instruction (CSI) program is now in its 7th year at the CNUCOP, with several hundred of students served over this time.

CSI is Pre-Remedial: The aim of our CSI program is similar to traditional SI: to provide academic support

to students *well before* they begin to struggle in a challenging PharmD course. As for traditional SI programs, CSI it is open to all PharmD students, with the aim of having both struggling and top students attend. Given the high level of attendance (approaching 90% of the P1 class for some sessions), our CSI program does not appear to bear the stigma of individual tutoring. CSI sessions begin early in the semester to prove support before the first exams or major projects, with the aim of helping students do better on early quizzes (iRATs) and to avoid failures on exams. CSI sessions are typically 2 hours in length, offered biweekly and are scheduled around the P1 exam schedules, as well as the exams of the CSI Leaders. In addition, CSI Leaders also offer 1-2 office hours/week in a quiet, accessible office designated for CSI and tutoring.

Photos: Above, left: CNUCOP CSI session #4, Wed., 5 Oct 2016, 4:15-6:15 PM, for PBS601: Cell Bio/Biochemistry. P3 CSI Leaders Justin Ko (at the podium) and Alan Truong (writing on the overhead – projected on the screens). Initial attendance at this session was 92 P1 students (out of 125 total P1s) (This photo was taken at the end of the 2-hour session, at which point only a few students had left.) Above, right: CSI Session (4 Dec 2017) with CSI Co-Leaders for PBS 601 (Cell and Molecular Biology and Biochemistry) Christina Stephenson (Left) and Britney Satow (right).

Since first offered in the Spring of 2015, CSI has been offered for 13 semesters, with a total of 26 different classes have been supported (see below). In some semesters, two or more courses (PBS 603, 605 and 611) were covered by one pair of CSI Leaders. In the spring of 2015, both P1 and P2 classes were supported, but based on stronger P1 attendance, since then, CIS supported mostly only P1 courses. In the Fall of 2021, based on P2 student requests, a modified CSI is being piloted for one P2 course (CAS705).

The courses supported, and semesters offered, are listed below:

Courses supported by CSI at the CNUCOP:

CSI at the CNUCOP is in its 13th semester, with CSI offered for the following

seven courses: 2015 Spring: P1 Pharmacokinetics (PHAR 633*)
2015 Spring: P2 Pathophysiology and Pharmacology III (PHAR 725)
2015 Fall: P1 Cellular and Molecular Biology and Biochemistry
(PHAR 601) 2016 Spring: P1 Pharmacokinetics (PHAR 633)
2016 Fall: P1 Cellular and Molecular Biology and Biochemistry (PBS 601)
2016 Fall: P1 Medicinal Chemistry (PBS 603*) & P1 Biopharmaceutics, Drug Delivery & Calculations (PBS 605) 2017 Spring: P1 Pharmacokinetics (PBS 604)
2017 Fall: P1 Cellular and Molecular Biology and Biochemistry (PBS 601)
2017 Fall: P1 Medicinal Chemistry (PBS 603) & P1 Biopharmaceutics, Drug Delivery & Calculations (PBS 605) 2018 Spring: P1 Pharmacokinetics (PBS 604)
2018 Fall: P1 Cellular and Molecular Biology and Biochemistry (PBS 601)
2018 Fall: P1 Medicinal Chemistry (PBS 603) & P1 Biopharmaceutics, Drug Delivery & Calculations (PBS 605) 2019 Spring: P1 Pharmacokinetics (PBS 604)
2019 Fall: P1 Cellular and Molecular Biology and Biochemistry (PBS 601) and Calculations (PBS 611) 2019 Fall: P1 Medicinal Chemistry (PBS 603) & P1 Pharmaceutics, (PBS 605)
2020 Spring: P1 Pharmacokinetics (PBS 604)
2020 Fall: P1 Cellular and Molecular Biology and
Biochemistry (PBS 601) 2020 Fall: P1 Medicinal Chemistry
(PBS 603)
2021 Fall: P1 Cellular and Molecular Biology and
Biochemistry (PBS 601) 2021 Fall: P1 Medicinal Chemistry
(PBS 603)
2021 Fall: P2 Therapeutics II (Psychiatric and Neurological Topics) (CAS 705*)

*In 2016, the course prefix and numbering systems changed from PHAR to PBS for Pharmaceutical and Biomedical Sciences courses. CAS designates courses offered from the Clinical and Administrative Sciences program.

Administrative and Faculty Support of CSI: For each course proposed to be supported by CSI, a range of individuals work with the CSI Faculty Advisor, Dr. Suzanne Clark, to help run the CSI program. This includes the current and previous course coordinators for the supported courses (Drs. Eman Atef, Andy Nauli, Ruth Vinall, Tibebe Woldemariam, Rania Elkeeb, Uyen Le, Fitsum Sahle, Tiffany- Jade Kreys, and Erika Titus-Lay (listed in order in which their courses were added to the CSI program).

Administration, financial, and staff support also are provided by the Assistant Deans of the Office of Student Affairs and Admissions (OSAA) (Ms. Cindy Porter-Frasier (2014-2015), Dr. Tiffany Jade Kreys (2016 through 2020) and Dr. Olivia Phung (2021), and Mr. Jason McDowell, CSI Staff Advisor, and Dr. Anhao Sam, Tutoring Coordinator. The Senior Associate Deans of the Office of Academic Affairs have also provided support and guidance for the development and continuation of the CSI program (Dr. Karen Hassell (2015-2018) and Dr. Linda Buckley (2018-present). The OSAA provides financial support for the CSI Leaders (a flat fee of $1,200/semester/Leader) and administrative support for time sheets. At its initiation in 2015 and 2016, the Chair of the Department of Pharmaceutical and Biomedical Sciences (Dr. Parto Khansari) and the Senior Associate Dean of the Office of Academic Affairs (Dr. Karen Hassell) helped identify high-risk (high DFW) courses in the P1 year for which CSI should be offered. The CNUCOP Deans have also

supported the initiation of the program (Dr. Shane Desselle) and have provided ongoing support of the program since its initiation (Dr. Hieu Tran and Dr. Xiaodong Feng). This broad support for the program helps sustain the program and lets the students see the strong institutional commitment to their academic success.

Courses Supported and CSI Leader Training: Each course coordinator of an eligible course is consulted regarding their interest in having CSI support. CSI is only offered for a class if the course coordinator wishes to have it, as the faculty will need to set aside time to review handouts before for each session. Each semester, before each CSI session, course coordinators and instructors are consulted about the content of the worksheets, problem sets, and handouts ("application exercises") prepared by the CSI Leaders for an upcoming CSI sessions. The faculty members are provided the opportunity to review and provide feedback to the CSI Leaders on the applications, as well as allow access to Canvas for file downloads (but not for viewing or editing grades).

The CSI faculty coordinator works with the course coordinators to identify potential CSI Leaders (ideally, a semester ahead of the course offered), helps set the CSI session schedule, reserves the rooms, track scheduling conflicts, reviews/edits/prints the applications, and tallies attendance. The CSI coordinator also works with the CSI Leaders to schedule the sessions around the P1 exams, as well as the Leader's own exams.

The CSI faculty coordinator provides to the CSI Leaders orientation on the history of Supplemental Instruction at UMKC, as well as within the University California/California State University and California Community College system, most of which have robust SI programs within their learning centers. CSI Leaders are also provided information about the science of learning and memory, Team-Based Learning (TBL) methods, active learning teaching methods, question writing, and peer-assistance programs. The CSI faculty coordinator also provides information to the faculty about the process and aims of CSI, the level of responsibility and autonomy of the CSI leaders, and the general procedure each week.

Student orientation to CSI

P1 students receive orientation to CSI through several avenues. The CSI Faculty Coordinator and Assistant Dean for OSAA discusses CSI during interviews and orientation, where they highlight administrative support for the program. During the P1 Orientation Week, the CSI Faculty Coordinator and a CSI Leader or current student present to the incoming P1 students. CSI Leaders also present a study skills workshop early in the fall semester for the P1s.

Then, each semester, once academic alerts are generated and processed by the OAA, the Associate Dean and Faculty Advisors encourage struggling students/advisees to attend the CSI sessions for supported courses. Student class presidents also work with the CSI Leaders to identify optimal times to hold sessions that work within their classmates exam/event schedules, and promote the sessions to all students.

CSI Sessions, Office Hours and Outcomes:

Session schedules and structure: For each course, the CSI student leaders hold weekly or bi-weekly 2-3 hour review sessions open to all students during which they reviewed problem sets or specific concepts in a large group setting, using team-based learning (TBL) and active-learning methods. To prepare, the CSI leaders reviewed the material covered in the week(s) before and then develop problem sets and application exercises for the session. The week before each session, the CSI applications are reviewed by the course coordinator and/or the CSI faculty coordinator.

Attendance: As is the traditional model for SI, students are encouraged to attend CSI sessions, but attendance is voluntary and anonymous. This allows the student autonomy in their choice of study approaches and is hoped to help them develop their own intrinsic motivation and sense of professionalism. As is the case for typical SI programs, attendance is taken, but is not provided to the course coordinator, to maintain confidentiality of those who attended – a factor to which the course coordinator agreed as part of having CSI support for their course.

Office Hours: CSI Leaders also hold a weekly office hour at times that are convenient for the P1s and in a place that is accessible to the students, which may be in a classroom or, when available, an empty faculty or staff office. Again, these office hours are open to all P1s, to obviate the stigma associated with individual tutoring mandated by academic alerts and the Office of Academic Affairs.

CSI Session Attendance Outcomes and Informal Feedback: For all of the P1 classes, the CSI sessions were well-attended and well-received. For example, for the Fall 2015 Cell and Molecular Biology and Biochemistry course, 9, ~ 2-hour CSI sessions were held with a cumulative attendance of 253 unique visits for the 2 hour sessions, for a total of 506
student-hours served. An average of 44% (range 19-70%) of the class attended the sessions (which is roughly double the reported national average for SI sessions). For the spring 2016 Pharmacokinetics class, 10 CSI sessions were held (nine in-person CSI sessions and one-take-home project over spring break). Attendance was taken and was ~ 150 unique visit for the 1-3 hour sessions (ave 2.5 hr/session) for ~ 421.5 unique student-hours served for the session for which sign-up sheets were available. Similar attendance has continued over the ensuing years.

CSI Leaders reported working from 55-80 hours/semester. This includes preparing for and holding sessions, editing handouts, scheduling, answering emails, as well as holding ~ 1-2 office hours/week. In the spring of 2020, due to COVID-19, the CSI sessions in March and April were delivered via distance. Informal feedback has been positive from the students in the P1 classes and the P1s have asked for the program to be continued in the future, including being expanded to more P1 and P2 courses in the future.

P1 Satisfaction Survey: In the spring of 2020 a survey was administered to the P1 class after the end of the semester. Out of the 94 P1s, 23 responded. The responses were favorable and supportive of the efforts and skills of the CSI Leaders and the program.

CSI Leaders:

CSI Leaders (21 Leaders trained since the start of the program):
2015 & 2016 Spr (PHAR 633) Justin Nguyen and Diem-Chi Tran (both Class of 2017)) 2015 & 2016 Fall (PHAR 601) Justin Ko and Alan Truong (both Class of 2018)
2016 & 2017 Fall (PBS 603 & 605) Ayesha Amin and Ruby Dang (both of Class of 2019) 2017 & 2018 Spr (PBS 604) Vinna Nam and David Huh (both of Class of 2019)
2017 Fall (PBS 601) Britney Satow & Christina Stephenson (both Class of 2020)
2018 Fall (PBS 601) Britney Satow and Elizabeth Browning (Class of 2020 and 2021, respectively) 2018 Fall (PBS 603 & 605) Janie Yu and Luis Tolento Cortes (both Class of 2021)
2019 Spr (PBS 604) Christina Stephenson and Elizabeth Browning (Class of 2020 and 2021, respectively) 2019 Fall (PBS 601) Elizabeth Browning (Class of 2021) and Sang Ahn Phan (Class of 2022)
2019 Fall (PBS 603 & 605) Janie Yu and Luis Tolento Cortes (both Class of 2021)
2020 Spr (PBS 604) Elizabeth Browning (Class of 2021) and Sang Ahn Phan (Class of 2022) 2020 Fall (PBS 601) Sang Ahn Phan (Class of 2022) and Kenneth Cheng (Class of 2023) 2020 Fall (PBS 603) Farah Sedki and Mohammad Khan (Class of 2023)
2021 Fall (PBS 601) Kenneth Cheng (Class of 2023) and Amber Huyen (Class of 2024) 2021 Fall (PBS 603) Farah Sedki (Class of 2023) and Tureye Abdulla (Class of 2024)
2021 Fall (CAS 705) Xinge Zhen and Anmolpreet Kaur (Class of 2024) (Modified CSI Review Sessions)

CSI Leader Selection Criteria: Our CSI leaders are P2 or P3 PharmD students chosen based on a range of characteristics. They should be academically strong in all classes and must have received an A in the class for which they provide CSI support. Preferred characteristics include previous experience serving as individual tutors (paid or volunteer), attended CSI as a P1, and being viewed by faculty members as overall conscientious, responsible, approachable, trustworthy, and academically oriented students. The course coordinators of the supported class may have observed them being respected by classmates as knowledgeable in the class and also willing and open to share their knowledge with others, including struggling students. Leaders also should have organizational and ethical traits important for this role, including time management skills, a commitment to honesty, accuracy, confidentiality, and respect of (and respected by) fellow students. It is also important that they are viewed as approachable for struggling students. SI Leaders typically have a high GPA. They are often are Rho Chi members (top 15%) or will be eligible at the end of their P2 year, although this is not required.

CSI Leader Teamwork and Role Model Skills: As our CSI Leaders also work in pairs, Leaders also must have effective teamwork skills and be comfortable sharing leadership, workload, and authorship. They can also discuss effective teamwork skills with the P1s during CSI sessions or office hours. Finally, as CSI Leaders can serve as role models for the incoming P1 class, the above traits are all desirable personal qualities to which the new PharmD students can strive in their quest to become respected professionals, themselves. CSI Leaders expose P1s to leadership pathways that focus on academics, which provides leadership experience in addition to professional service organizations and clubs focused on more social activities. Thus, academically minded students can channel their skills and

energies to helping their classmates, as well as build their CVs for residency, fellowships, and academic pathways.

Training: CSI Leader training includes a supplemental instruction training manual, teaching tips, and throughout the semester they receive feedback from the Course Coordinators and the faculty advisor on worksheets and application exercises. Formal group training sessions have reviewed Bloom's Taxonomy and creating worksheet questions or application exercises that promote critical thinking. In addition, several CSI Leaders have enrolled in Specialty IPPEs focused on CSI and/or academic support, the science of learning and memory, including exploring the literature of cognitive processes, study and skills, and active learning teaching methods.

CSI Leader Outcomes: The CSI Leaders gained direct experience using active learning and TBL teaching methods. The position also can promote their academic leadership skills and recognition. CSI Leaders have been nominated for and awarded College-wide and national awards and scholarships. Their work as CSI Leaders is a strong point of focus for letters of recommendation or support, as well as award and scholarship nomination packages. Given their high level of
service, it is easy to discuss their high level of professionalism, mentorship, responsibility, and institutional service. These are the qualities that awarding organizations and employers often seek. In addition, CSI Leaders have given on- campus and national scholarships and awards. CSI Leaders who have graduated have gone on to pursue residency and/or employment in their preferred geographic areas. Current past leaders have applied for residency (see below). Two leaders wrote about their experiences as CSI Leaders in the Spring 2018 issue of the national magazine, APhA Student Pharmacist. Between April of 2018 to the present, if you did a Google search of "Supplemental Instruction" and "Pharmacy", their article is usually the first on the retrieved list.

Outcomes for CSI Leaders: Awards, Residencies, Publications and Presentations (**CSI Leaders Co-authors):

National Awards: Walmart Scholars:
2018: Vinna Nam (Class of 2019)
2019: Britney Satow (Class of 2020)
2020: Janie Yu (Class of 2021)

Korean Scientists and Engineers of America
(KSEA) Award 2018: Vinna Nam (Class of 2019)

PGY1 Residencies:
Diem-Chi Tran (Class of 2017) Justin Ko (Class of 2019) Britney Satow (Class of 2020) Christina Stephenson (Class of 2020) Janie Yu (Class of 2021)

Elizabeth Barret Browning (Class of 2021) Luis Tolento Cortex (Class of 2021)

Orientation program

Since CNUCOP's inception, all incoming first-year pharmacy students are required to attend a four-day orientation, which is held in mid-August, one week before classes begin. The topics reviewed during orientation have remained consistent over the years, with the exception of the addition of a Scavenger Hunt, which was added in 2013 to facilitate team building. Topics reviewed during orientation include, but are not limited to, student services, ethics/law and professionalism, experiential education requirements and internship licensing, non-academic and academic policies, student life, research, campus safety reporting, and the mentoring and academic success program. Team development activities and an introduction to team-based learning are also provided during orientation. During this time, our IT staff also delivers training on using our learning management system, CANVAS, as well as Turning Point and ExamSoft. Additionally, students are required to complete an online sexual harassment training module, provided by 'mystudentbody', prior to the end of orientation.

The Pharmacy Primer Program. The Pharmacy Primer Program is a pre- matriculation program aimed at preparing students for the rigors of pharmacy school. The Primer provides a bridge between prerequisite courses and pharmacy courses in the P1 year and covers select topics in anatomy and physiology, biochemistry, microbiology, pharmacology, calculations, professionalism, pharmacy career awareness, career planning, stress management and includes student team building opportunities. Student perception data indicate that the Primer makes students feel welcome and has greatly improved student confidence and morale. Importantly, the 20-item survey instrument gauges perception across six behavior, readiness, aptitude, and attitude categories and has consistently been rated at a greater than 93% positive response. Appendix 9.1C

Career advising

California Northstate University College of Pharmacy offers a number of services to our students to help them advance in their pharmacy careers. Each fall the Office of Student Affairs hosts *Graduate Interview Day* for our P4 students, during which time retail and hospital pharmacy representatives, as well as representatives from the US Armed Forces, come together to interview our students in one location. Through this event, students are able to interview with up to a dozen companies in one day. *Graduate Interview Day* helps our students obtain pharmacists positions, both within and outside of California, prior to graduation. Residency mock interviews with faculty are also conducted at *Graduate Interview Day* to prepare our P4 students for residency interviews.

Similarly, in the spring of each year, the Office of Student Affairs organizes the *Pharmacy Internship Fair* for our current P1, P2, and P3 pharmacy students. This event serves as a networking opportunity for our students and enables them to speak with company representatives from across California about pharmacy

internships.

Throughout the school year, the Office of Student Affairs sends frequent notifications to students about any recent employment opportunities. These internship and job listings are also posted to the Career Services section of the College of Pharmacy webpage. This section of the webpage also provides a listing of career options within the field of pharmacy, as well as web-links to a number healthcare-related employment search engines. Links to professional pharmacy organizations among other career-related information is available on the webpage.

The Office of Student Affairs has recently begun to offer workshops and seminars to our student body to help them prepare for a profession in pharmacy. This semester the Office will host a resume writing and interview skills workshop, which will help our students prepare for the upcoming *Pharmacy Internship Fair.* The Office also plans to offer a workshop on test-taking anxiety this semester. Subsequent workshop topics will be based on student interest and faculty input.

Following the 2019 ACPE site visit, the Office of Student Affairs and Admissions (OSAA) collaborated with many stake holders within and external to the College to address the concerns identified in the 2019 AACP Graduating Student Survey. Appendix A A variety of new programs were created as a result of this effort and many existing programs were further enhanced to improve these areas of student services. Our initiatives are outlined below in detail in the three categories of career services and counseling, student advisement, and health and wellness, as required by guidance included in the ETR. Student concerns regarding financial aid advising are addressed earlier in this report under Standard 9.

Career Services and Counselling. Following the Site Visit, the OSAA established and implemented a learner-centered "Professional Career Development Program" (PCDP) to assist students in identifying their professional goals and supporting the achievement of these goals. The PCDP was effectuated through:

The Professional Career Development Program. PCDP's initial series of lectures (PCDS) related to professional development. Appendix 14.1 As noted in Standard 4, PCDS sessions facilitated career development skills such as writing an effective resume, CV, cover letters, and "thank you" notes, a residency readiness workshops, and round-table discussions for developing students application, interviewing tips & networking skills. Appendix 14.2 & Appendix 14.3 During PCDS the Career Pathways Series, experts in various areas of pharmacy were invited from different pharmacy specialty backgrounds to broaden students' exposure to diverse career pathways within pharmacy.

The PCDP's Career Pathways Series. OSAA's ongoing career support services includes annual student-centered career events, and a "Graduate Interview Day" for P4 students to practice interview skills in mock-interview events and also interviews with companies for potential pharmacist positions Appendix 14.1

Adoption of the electronic portfolio system (e-Portfolios). E-portfolios help track student development. Appendix 14.9 In AY 2019-2020, OSAA developed and implemented the "CNUCOP Student E-Portfolio System" to encourage learners to:1) self- assess professional and personal development, 2) cache "signature

assignments" and self- reflections, 3) self-identify strengths and opportunities for growth, 4) create an action plan for further skills development, 5) strengthen the advisor-advisee relationship by facilitating frequent meetings, and 6) enhance written communication skills. Faculty advisors are tasked with reviewing each advisee's e-Portfolio. All students are required to upload to MyCred (through CORE ELMS) documents related to the PCDPS, COCULOs, individual CVs/Resumes, cover letters, certifications and licensures, work experience, and experiential rotations, as well as the college's signature assignments and self-reflections.
Appendix 14.3

Academic Advising. To enhance academic advising at the College, after careful deliberation following feedback from students and faculty, the CNUCOP OSAA expanded its current advising processes. Briefly, the College standardized the process for academic advising and secured curricular time in the form of an "advising week" to facilitate student and faculty interaction.

Standardizing the Process for Academic Advising. To further strengthen the advisor-advisee relationship, the CNUCOP Center for Teaching and Learning (CTL) organized an *ad hoc* "Student Advising Task Force" in fall 2019 to standardize the process for advisee meetings. As a result, tracking forms were developed to document student progress. Appendix 14.8 & 14.3 and plans are underway to develop Canvas logs to automatically identify advisees who did not meet with their advisor and to offer Faculty Advisor Training Sessions through the CNUCOP CTL.

"Advising Week". CNUCOP enhanced academic advising through the creation of a "Student Advising Week", where students are required to meet with their faculty advisorseach semester to enable the latter to holistically review learners' progress on academic standing, completion of COCULOs and e-portfolios, and their plans for postgraduate goals. Appendix 14.7 The advising week, however, does not preclude any student from seeking continuous advisement through the academic year, rather it aims to "secure" time in an otherwise busy program schedule.

Support for research or engagement

The College offers PharmD students research opportunities through a number of avenues, including through independent electives, through a new research fellowship, and where possible through funded grants. Students are also encouraged and supported where possible to explore options available externally through industry and other local research collaborations.

The Summer Research Fellowship Scheme was launched on April 14, 2016 after which two inaugural summer research fellowships were awarded to current CNUCOP pharmacy students, working on projects with two faculty, one from each of the two academic departments. A stipend of $4800 was provided to each of the award winners by the COP.

The selection of summer fellowship awardees was made by members of the COP Research Committee. The winners were chosen based on the student's academic record, personal statement in the fellowship application, letter of recommendation, as well as overall motivation and interest in research/scholarship related to their future career paths.

i. Student organizations and fraternities

The College from its inception has supported several student organizations that help aid in developing attitudes and values that are important when practicing pharmacy. One of the first to be established was 'PRIDE' (Professionalism, Responsibility, and Involvement in my Dedication to Excellence), developed to expand on professionalism and provide students with skills necessary to be a contributing member of the profession.

Currently, California Northstate University College of Pharmacy has 17 student organizations or bodies and fraternities (see list below). These organizations and fraternities are very active in the community through their participation in both healthcare and non-healthcare related activities. Health fairs are organized throughout the school year, where services such as influenza immunizations, health screenings (blood pressure, diabetes, cholesterol) and disease state education are provided to the community.

Student Organizations at COP
Academy of Managed Care Pharmacy (AMCP) – International Society for Pharmacoeconomics and Outcomes Research (ISPOR)
American Pharmacists Association (APhA)/ California Pharmacists Association (CPhA)
American Society of Consultant Pharmacists (ASCP)
American Society of Health System Pharmacists- Student Chapter (SSHP)
Christian Pharmacists Fellowship International (CPFI)
CNU Cancer Awareness Research & Education Society (CNUCARES)
Diverse Women in Professional Healthcare (DWP)
Industry Pharmacists Organization (IPhO)
Kappa Psi (KY)
Multicultural Association of Health Profession Students (MAPS)
National Community Pharmacists Association (NCPA)
Phi Delta Chi (PDC)
Rho Chi Society
Rho Pi Phi (RPP)
Student Body Council (SBC)
Student College of Clinical Pharmacy (SCCP)
Student National Pharmaceutical Association (SNPhA)

Our students also engage in events focused on increasing awareness of and/or funding for certain disease states through their participation in community walks and other fundraisers. Examples of non-healthcare related activities our students have partaken in include collaborating with *Habitat for Humanity* to help build houses, collecting toys to give underprivileged children in *Operation Christmas Child*, and developing water pasteurization indicators for third world countries.

Our students' involvement extends beyond the community to regional, state, and national levels. Through their participation in numerous local competitions evaluating their clinical

knowledge, or from their involvement in research at the college-level with faculty, our students travel to compete and/or present research posters at state, regional, and/or national meetings. The Office of Student Affairs provides financial assistance to those students involved in competitions and research presentations to enable them to travel to these meetings and represent CNUCOP.

The Office of Student Affairs records all co-curricular learning events in an event log to evaluate student completion of co-curricular learning activities. Information recorded in this log includes the name of the student(s) participating in the event, along with a description of the event, and activities undertaken. Further development of co-curricular activities and helping students reflect on these sorts of experiences will help reinforce students' understanding of principles learned in the classroom, and will become one of the top priorities for the Office of Student Affairs in the coming months.

The Office of Student Affairs works closely with the Student Organization Leadership Council (SOLC), the composition of which includes the president from each organization and fraternity. SOLC meetings with the Assistant Dean of Student Affairs are held bimonthly to discuss items related to co-curricular activities, organization funding, inventory for health fairs, and any other topics as needed.

To ensure students do not burden themselves with too many extra-curricular commitments and to help safeguard poor academic performance, a student running for an officer position must meet the following requirements: i) have a cumulative GPA of at least a 3.0, ii) be in good financial standing with the College/University, iii) not be on academic probation and iv) not have any significant professionalism issues during the pharmacy program.

Students interested in serving in two officer positions must have a minimum cumulative GPA of at least 3.25 to ensure they have a strong academic foundation prior to committing themselves to two leadership positions. Students are not permitted to serve as an officer in more than two organizations. The academic standing of each officer will be tracked and those experiencing academic difficulties in one or more courses, as evidenced by an officer being placed on academic alert, may have certain restrictions imposed on them by the Officer of Student Affairs to limit their participation in extracurricular activities until improvement in grades are noted. Two or more academic alerts may result in the officer being removed from his or her position.

Students interested in running for officer positions must first notify the president of the organization of interest that they plan to run for a specific officer position. A list of all students interested in running for officer positions is then compiled and submitted to the OAA in order to verify academic standing and professionalism. Students who do not meet the requirements are removed from the list. The specific reason(s) for removal of students from the lists is not shared with the organization's president.

ii. Other support for students

Any student enrolled at California Northstate University who is experiencing emotional difficulties has the option of meeting with our onsite psychologist. Additionally, students are encouraged to use Talk-One-2-One, an around-the-clock phone service that provides students the opportunity to speak with a counselor trained in managing a variety of conditions including but not limited to stress and anxiety, depression, substance abuse, financial problems, etc.

f) Information and Technology Resources

A new email server for University was introduced in 2014 and involved migration from 2003 to Exchange 2010 to allow some key features for both faculty/staff and students, including a much more responsive Outlook Web Access browser client, smartphone email syncing for students, Outlook Anywhere, and improved data loss prevention.

Significant hardware infrastructure improvements were also made in 2014 when the university moved to the Elk Grove site. All networking equipment including firewalls, routers and switches has been designed, replaced and put into production with newer equipment. This new hardware and design has been built in for greater redundancy with dual firewalls, core routers and cabling redundancy for the switches. CNU installed a new SAN (storage area network) for file services. This includes high-capacity redundant drives, SAN switches and multiple power sources for increased up time for files and increased storage management compared to the simple file server prior to the move to Elk Grove.

Wireless infrastructure for students, faculty and staff, in regard to new equipment and new network designs, was also improved. Wireless infrastructure now runs at 10 times the speed (100 Mb/s to 1 Gb/s) compared to the Rancho Cordova facility. This allows for 10 times as many users to connect to a single access point. Even with the greater throughput, CNUCOP has increased the amount of wireless access points in most areas to meet the increased demands of wireless usage. Unlike in previous wireless models in most universities with a 1:1 ration of students devices/student CNU has accounted for the increased usage of BYOD (bring your own devices) to go beyond only laptops, so that the ratio was calculated closer to a 3:1 figure in our design. This will mitigate saturation rates on the wireless access points.

With the increased requirements for bandwidth due to new equipment and network design, CNU has partnered with Consolidated Communications to provide 200 Mb/s of bandwidth as well as partnering with Frontier Communications to provide another 100 Mb/s of bandwidth. The total of 300 Mb/s of bandwidth compared to the 50 MB/s of bandwidth at the former Ranch Cordova location provides a 6-fold increase bandwidth capacity. Another major key implementation was the partnership of bandwidth from two separate providers. This allows for increased redundancy in case one of the lines or the communication companies were to have an outage. This redundancy will allow for seamless continuity of academic and university support functions with the implemented failover and greatly increases instructional use of the

Internet (e.g., youtube.com videos) and other programs/devices taking up large memory storage capacity.

Audio/Video capacity in the classrooms have been significantly upgraded. New screens with widescreen formatting, projectors, wiring, audio equipment and design have all been purchased and implemented in the new facility. Ten high-end Shure wireless microphones throughout each classroom have been added. The microphones include push-to-talk function so that unwanted conversations are not transmitted and to reduce faculty need to turn off unwanted microphones centrally during class. Display Note is a newly purchased application provided to students as another option of viewing content. Display Note allows students to view presentations displayed on classroom screens directly on their laptop. This provides a way for students to save annotations made on presentations directly to their laptop.

ExamSoft was first introduced in 2014 during which time it was in limited use among certain faculty for pilot testing. In 2015 faculty were required to use ExamSoft for all summative assessments, and by 2016 it was being used by all faculty for all assessments. The software ameliorates administrative burden and enhances security in testing environments. The LMS software – CANVAS – was also introduced in 2015, with all students having access to guided reading, syllabi, and grade books for all courses for which they are registered.

The 'My Mediasite' application has been purchased/installed to allow faculty to generate video content such as voice-over Power Point presentations directly from the faculty member's desktop or laptop. It allows them to generate, upload, manage (store, group and search), edit video content and view student usage metrics regarding the presentation created.
The University has recently undergone and adopted policy changes to strengthen the institution's informatics and data security and safety systems, largely to help prevent external threat or risk of mal-ware hacking and intrusion.

Finally, students can access library resources on-site and on-line. The Director of Library and Learning Resources is Mr. Scott A. Minor, who has held the position of Library Director at Californian Northstate University fulltime since April 2008. He works fulltime and is available to help students and faculty access books and PCs in the library itself; students have immediate online access to over 500 of the top rated pharmacy and medical journals. In addition the Library has access to an addition 1000+ professional journals via a pay-per-view arrangement from OVID Technologies Inc. These articles may be purchased by the Library Director on an as- needed basis. The College is a member of the National Networks of Libraries of Medicine and participates in the DOCLINE interlibrary loan system which allows it to request copies of articles from any of the other member libraries. These requests are usually filled in approximately 2 working days.

g) Physical Resources

The College moved to its new facility in Elk Grove, CA, in May 2014. The facility features larger classrooms with upgrades in technology and bandwidth, an enhanced Library and Learning Center, more office space, more study rooms, more research space, and enhancements to simulation, IV and mock pharmacy labs.

There is 4,200 square feet of shared Library space, which has recently been reconfigured to create more study space for the students (increased seating by 33%).The new LLC study area allows for seating of 140 students. The study area includes five large partitioned areas which, although not entirely enclosed, allow for groups of up to 6 or 7 to work together and five open tables which will allow up to 6 to work together. The Library also provides ten smaller areas which would allow for 2-4 students to interact in relative isolation. There are two group study rooms. The smaller can accommodate approximately 8 students and the larger can seat from 12-40 depending on the configuration of tables and chairs. There are 16 carrels for individual studies and 10 public computers for patron use.

There are 3 large classrooms of 5000 square feet each for dedicated College use; they are fully networked to allow professors and students to use the latest instructional technologies as part of the learning process. The classrooms have 6 projectors and screens for presentation by the instructor, and each classroom has 10 student microphones. There are two smaller classrooms with AV projection of 670 square feet that can be used for elective instruction, student breakout sessions, or meetings for up to 25 students. The College has 3 conference rooms and small classrooms can be coordinated and shared with the COM when additional space for elective classes or meetings might be required.

The College has approximately 2,100 square feet of dedicated research space, equipped to perform for cell culture, biochemical assays, western blot analyses, immunohistochemistry and High Performance Liquid Chromatography (HPLC). This space is allocated for benchtop research applications for faculty teaching inside the COP and their student mentorships. The College also recently acquired access to an animal research facility under contract with Antibodies Inc. (a commercial animal research facility) and in addition, has an external agreement with UC Davis Cancer Center (Sacramento, CA) to perform oncology-related animal research.

The COP possesses a model pharmacy lab comprised of 857 sq. ft. for training students in mock drug consultations, vaccination programs, and community healthcare outreach efforts. It is set-up in an open air/multipurpose format and can be accessed for a variety of training opportunities. The COP also has 675 sq. ft. of dedicated space for a sterile compounding laboratory. This space is used to train students in the art of preparing sterile medicines for intravenous applications, and is split into two distinct areas. The antechamber is set up to observe students donning their gowns and how they scrub down prior to entering the

preparation area. The main chamber is composed of simulated hoods and is the focal point of activity for the preparation of pseudo-medications. Construction of the lab was completed in early 2016 and classes began utilizing the space in the Spring Semester of 2016 for the following courses: Introduction to Pharmacy Practice, Pharmacotherapy II, and Pharmacotherapy III.

In addition to dedicated facilities the College also has access to a 2,500 sq. ft. clinic facility for Objective Structured Clinical Examination (OSCE) training, located in the College of Medicine. In this observed environment, the COP students develop and practice patient interaction skills, drug history taking, patient teaching case studies, and as well as IPE training with the medical students. The center is comprised of ten examination rooms averaging 118 sq. ft. per room, a command observation room of approximately 193 sq. ft., and a mock triage room of approximately 217 sq. ft.

Other shared space includes the 619 sq. ft. Simulation lab (housed in the COM) composed of two high• fidelity mannequins, PC read outs and emergency response equipment (crash carts, blood pressure cuffs, pseudo-meds, etc.) This space is allocated for simulating an emergency room, rounding experiences, and trauma cases. The mannequins are highly interactive and give the students the opportunity to practice their communication, teamwork, professionalism, and ethical recommendations, with other health profession students.

The planned expansion of the university includes an increase in physical space. In 2014, CNU acquired use of an additional building, located at 9650 West Taron Drive. This building provides an additional 15,000 square feet 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 hosting major events. Furthermore, the new building allows for the addition of seven private student study rooms (for five students per room), four semi-private study rooms (for 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, a preparation kitchen, an audio-visual control room, and a room for nursing mothers.

h) Staff

COP assesses the need for staff based on program expansion and workload. The College enjoys some shared resource provided by the University rather than the College, such as centralized functions in IT, Registration, HR, and Facilities services. The current staff dedicated to College functions is identified below:

College of Pharmacy full-time administrative support staff

NAME	POSITION
Gail Kubat	Admissions Advisor
Jason McDowell	Outreach and Admissions Advisor
Imani Grant	Student Affairs Coordinator
Jonathan Hooton	Student Affairs Coordinator
Kimberly Vongnalith	Coordinator of Experiential Education
Elizabeth Suarez	Coordinator of Experiential Education
Scott Minor (shared with COM)	MLS Director
Sadie Davenport (shared with COM)	Library Assistant
Jocelyn Gonzalez	Executive Assistant to the Dean/Chief of Staff
Josephine Saca	Administrative Assistant for Office of Academic Affairs
Dahlia Godinez-Preciado	Administrative Assistant for Clinical and Administrative Sciences
Zyra Bonita	Administrative Assistant for Pharmaceutical and Biomedical Sciences
Mark Salcedo	IT Support Specialist
Melanie Rose	Lab Manager

i) Financial Resources

CNUCOP has the financial resources needed to accomplish the mission and goals of the College. The 2016 California Northstate University Audit report will be available on site.

4. Summary reflections

- In 2016, ACPE issued new sets of guidance and standards (Standard 2016) for the continuous quality improvement of Doctor of Pharmacy (PharmD) academic programs. Various standing committees at the college met to strategize a plan to ensure these new standards are met. New positions and initiatives were created, including the Director for the Center of Excellence in Teaching and Learning and the Director of IPE. The curriculum was revised to improve the students' clinical skills, to incorporate interprofessional education in each didactic semester and to implement PCOA, a tool to assess the effectiveness of the curriculum. As these initiatives are newly executed, review of them is ongoing to ensure compliance and quality improvement. It is the priority of the Dean's Executive Committee to maintain the annual cycle of program review which includes contributions from diverse internal and external constituents and interim reports from relevant committees, including the Assessment Committee.

- Faculty recruitment and retention are recognized as being of upmost importance to the sustainability of the College. The College has identified a number of positions where recruitment is urgent and is pursuing an aggressive recruitment campaign to ensure as far as possible that qualified faculty join the organization.

- Faculty workload is perceived as high, partly because of the above issue. Further monitoring and rebalancing of workload will be required as more faculty are on-boarded and begin to contribute to the breadth and depth of academic activity in the College.

- We believe we have student attrition under control but aim to monitor student performance in light of removing the requirement for a bachelor's degree. Further data analysis to examine the correlation between science and math admission GPAs and student performance in certain courses and in the program overall, and on milestone, capstone, and external assessments will be conducted to inform enrollment and retention plans.

- Data collection and analyses of performance data has been inconsistent over the time frame of the review, and there has been some loss of data and information due to faculty turnover. The College has spent some considerable time and effort in the

last year to remedy this. Further evaluation of milestone performance data to identify whether any curricular improvements are needed will be undertaken and the College will evaluate published literature and best practice to develop a College Milestone strategy which will address the composition of the examination, (i.e., whether to include performance-based assessment), whether to have remediation, what it would entail, and what stakes and incentives will be utilized.

- While the College is proud to support the student organizations there is some concern that there may be too many student organizations, raising questions about their sustainability vis a vis the costs associated with running them, and the time and efforts expended by students when their involvement begins to affect academic performance. The OSA has already begun to collect and examine data and look into processes associated with applying for and joining the organizations, which will help the College more closely monitor their efficiency and student involvement.

- Addressing student concerns in a timely manner are important. The Student Body Council (SBC) serves as a liaison between students and faculty/administration. Student concerns are conveyed to SBC members, who meet bimonthly with the Assistant Dean of Student Affairs. The Assistant Dean of Student Affairs communicates student concerns to the Dean to enable an action plan to be established. When appropriate, student concerns may be brought to the level of DEC for further discussion. The action plan is then relayed back to the students. The Assistant Dean of Student Affairs logs all student concerns in a database. Additionally, each semester, Town Hall meetings are held by the Dean of the College of Pharmacy to discuss any current issues and provide updates to the students on new faculty or staff, new policies or procedures, etc.

- In order to ensure the College is fully compliant with ACPE 2016 Standards the College needs to ensure we have a robust co-curricular strategy that is implemented immediately. While students have been completing co-curricular learning activities throughout the duration of the pharmacy program, better tracking and evaluating of these activities is needed to ensure proficiency in each of the six co-curricular learning outcomes has been obtained. Faculty advisors will play a key role in tracking and evaluating advisee engagement in the co-curriculum. Certain signature events that may meet a number of co-curricular learning outcomes will be highlighted by the Office of Student Affairs to ensure all students are participating in valuable experiences to complement the pharmacy curriculum.

5. Future goals and planning for improvement

Goal 1. Implement strategies that help improve faculty and staff recruitment and retention, to include strategies already identified at the University level:

- Recruit faculty to fill the 8 faculty positions that are currently vacant (6 in CAS, 2 in PBS)
- Fill the CAS Department Chair position as soon as possible
- Adjust workload on teaching and service
- Address imbalance of assistant and associate ranking between the departments
- Implement a training program for new department chairs
- Create policies to ensure regular analysis of compensation packages
- Implement a competitive pay scale
- Implement a more competitive benefits package with options for long-term care
- Implement a new 401K plan
- Implement and monitor a long-term mentoring program
- Increase the use of multi-year contracts and timeliness of contract renewals
- Introduce performance metrics for all levels of university management that include retention as a goal
- Maintain or increase the number of faculty development opportunities

Goal 2: Monitor and evaluate results from Milestone Assessments, the Pharmacy Curriculum Outcomes Assessment, NAPLEX preparations, and the Board exams, and develop strategies for their administration:

- Consider making Milestone 1 and Milestone 2 a "High-Stakes" assessment by possible incorporation into the Practicum Courses
- Consider having the 50 practice PCOA questions a required activity in the PRC 810 course in preparation for the PCOA
- Consider making the PCOA a "High-Stakes" assessment and plan for remediation
- Map the content areas of the PCOA to the COP's curriculum
- Utilize information about students' performance in the content areas of the PCOA to help the COP identify gaps within the curriculum
- Evaluate performance on PCOA, PassNaplexNow, and NAPLEX and their correlations and utilize the data to identify and improve curriculum gaps and consider strategies to help students' improve performance

Goal 3: Implement a method to track and measure co-curricular learning outcomes:

- Update menu of co-curricular activities
- Map the co-curricular menu to co-curricular learning outcomes, which will enable the Office of Student Affairs, as well as each individual student, to track their progress in establishing proficiency in each of the six co-curricular learning outcomes
- The Office of Student Affairs will further refine their process for tracking and evaluating student progress in completing co-curricular learning activities
- Students will be asked to provide more detailed narratives describing their experiences in relation to the co-curricular learning outcomes
- For better tracking, students will upload these narratives to CANVAS, and faculty advisors will be tasked with reviewing the narratives and verifying that the student is participating in some level of co-curricular learning activities each academic year.

Goal 4: Maximize relationships between experiential education department and preceptors:

- Increase awareness of and participation in the PAC (preceptor advisory council) by inviting key preceptors into the process and publishing the minutes of the quarterly meetings
- Develop an edited list of preceptors to send the AACP survey to and use other means besides one large group email. Follow up as needed with reminders
- Continue and expand preceptor training options and personal site trainings
- Expand site visits and outreach
- Expand the EE section of the CNUCOP website

Goal 5: Review student organizations to ensure academics remain the primary focus for the student body:

- Consider reducing the number of organizations students can serve as officers in order to reduce the amount of time they spend engaging in extra-curricular activities and refocus attention to students' academic performance
- New officer regulations with more stringent criteria have recently been implemented to ensure students elected for officer positions have a strong academic background
- A reduction in the number of students eligible to serve officer positions may occur as a result of these updated regulations. Thus, the current student organizations and fraternities will be reviewed by the Office of Student Affairs to identify any with low membership or those with similar interests or areas of focus, which could be potentially merged
- The academic standing of each officer will be tracked to identify those experiencing academic difficulties, which may permit earlier interventions to occur

Goal 6: Review the enrollment management plan which addresses recruitment, admission, and enrollment of qualified applicants from diverse educational, demographic, and socioeconomic backgrounds.

- Initiatives that are focused on increasing recruitment efforts in the mid-West and South to better diversify the applicant pool
- More aggressive recruitment strategies to increase interest in the profession of pharmacy and ultimately the applicant pool
- A more stream-lined admissions process with faster pre-interview rubric screens and post-interview rubric reviews
- A review of the general education requirements and comparison to other programs to explore the option of reducing the number of general education classes to enable potential students to apply to CNUCOP earlier
- Better retention efforts to continue to maintain student interest after the interview, which may include more frequent meet-n-greets, making the CANVAS Incoming Student page available to incoming students earlier, providing merit-based scholarships to incoming students, using social media to maintain a connection with the students and advertise activities at the College of Pharmacy

Goal 7: Prepare for a comprehensive on-site evaluation from ACPE during the academic year 2018-19

- Prepare interim reports about the 6 standards the College is being monitored on to meet the March 2017 and October 2017 deadlines
- Plan and implement the self-study process to ensure compliance with all ACPE 2016 Standards

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