



**BOARD OF REGENTS
ACADEMIC/STUDENT AFFAIRS & RESEARCH COMMITTEE**

MEETING AGENDA

December 5, 2019

1:00 PM

Roberts Room

Scholes Hall

UNIVERSITY OF NEW MEXICO BOARD OF REGENTS'
ACADEMIC/STUDENT AFFAIRS & RESEARCH COMMITTEE MEETING
December 5, 2019 – 1:00 p.m.
Roberts Room, Scholes Hall

AGENDA

- I. Call to Order – Confirmation of a Quorum, Adoption of the Agenda**
- II. Approval of Summarized Minutes from Previous Meeting** **TAB A**
- III. Reports/Comments:**
Provost’s Administrative Report
 i. James Holloway, Provost & EVP for Academic Affairs
Member Comments
Advisor Comments
- IV. Action Items:**
- A. 2019 Fall Degree Candidates** **TAB B**
Finnie Coleman, Faculty Senate President
- B. AS Health Information Technology (VA) (delete)** **TAB C**
Laura Musselwhite, Dean of Instruction, Valencia Branch
- C. Certificate in Race and Social Justice** **TAB D**
Nancy Lopez, Director, Institute for the Study of “Race” and Social Justice
- D. Certificate in Radiation Control Technology (LA)** **TAB E**
Sharon Hurley, Dean of Instruction, Los Alamos Branch
- E. Certificate Nuclear Waste Operator (LA)** **TAB F**
Sharon Hurley, Dean of Instruction, Los Alamos Branch
- F. Certificate Nuclear Enterprise Science & Technology (LA)** **TAB G**
Sharon Hurley, Dean of Instruction, Los Alamos Branch
- G. AAS Nuclear Enterprise Science & Technology (LA)** **TAB H**
Sharon Hurley, Dean of Instruction, Los Alamos Branch
- H. Honorary Degree Candidates**
(This item will be discussed in closed session due to the necessity to keep candidate names confidential until such time any proposed candidate(s) are approved and have subsequently accepted the honorary degree.)
- V. Information Items:**
- A. Research Funding Report** **TAB I**
Gabriel Lopez, Vice President for Research
- B. Data-focused Professional Development Workshop**
Heather Mechler, Director, Institutional Analytics

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VI. Executive Session - Vote to Close the meeting and proceed in Executive Session.

1) Honorary Degree Candidates – discussion

VII. Vote to re-open the meeting and certification that only those matters described in Agenda Item VI were discussed in Closed Session and if necessary, final action on matters discussed in Executive Session that are required to be taken in Open Session, as follows:

1) Final Action on Honorary Degree Candidate(s) - (names to be kept confidential until prospective recipients accept the degree)

VIII. Public Comment

IX. Adjournment

**UNIVERSITY OF NEW MEXICO BOARD OF REGENTS'
ACADEMIC/STUDENT AFFAIRS & RESEARCH COMMITTEE MEETING**

September 5, 2019 – 1:00 p.m.

Roberts Room, Scholes Hall

MEETING SUMMARY

Committee members present: Regent Doug Brown, Regent Kim Sanchez Rael (via phone), Student Regent Melissa Henry (via Zoom), Provost & EVP for Academic Affairs James Holloway, Faculty Senate President Finnie Coleman, Staff Council President Ryan Gregg, ASUNM President Adam Biederwolf

Regents' Advisors absent: GPSA President Muhammad Hussain

- I. Call to Order @ 1:01pm**
- II. Call to Order, Confirmation of a Quorum, Adoption of the Agenda**
Melissa Henry, Student Regent
Motion to Approve: Regent Brown
Second: Provost Holloway
Motion: Approved
- III. Approval of Summarized Minutes from Previous Meeting** **TAB A**
Motion to Approve: Provost Holloway
Second: Regent Sanchez-Rael
Motion: Approved
- IV. Reports/Comments:**
Provost's Administrative Report
James Holloway, Provost & EVP for Academic Affairs
Reminder for key focus areas include:
 - Enrollment:
 - ✓ Building Faculty and UNM impact
 - ✓ Grand Challenges
 - ✓ Professional conference support
 - ✓ Lunch with the Provost
 - ✓ RPSPs
 - Branch campus engagement and integration.
 - Student Success:
 - ✓ Retention to second year and successful graduation
 - ✓ Exploring key student programs:
 - ✓ Honors Programs
 - ✓ Innovation, Creativity and Entrepreneurship
 - ✓ Interdisciplinary Education
 - ✓ Undergraduate research
 - ✓ And other high impact practices
 - Staff development.
 - Introduced new Vice President for Enrollment Management, Dan Garcia.
 - Internal search launched for the Vice Provost for Faculty Development.
 - Launching four dean searches this Fall:
 - ✓ Anderson School of Management (Mark Peceny, Search Committee Chair)
 - ✓ College of Education (Julie Coonrod, Search Committee Chair)
 - ✓ School of Architecture & Planning (Christos Christodoulou, Search Committee Chair)
 - ✓ College of Fine Arts (Greg Lanier, Search Committee Chair)
 - The Honors College project is complete.
 - Visits to all branch campuses by the Provost team (and strengthening of administrative relationships through workshop, data integrity and assessment).

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- The Advisement Structure Study was launched two years ago. It addressed inequity across all ranks of advising positions. The study also examined job market trends and compensation equity. The Advising Study team has begun work on a second phase of the study and will examine compensation equity amongst advisors across the University.
- The Higher Learning Commission Affirmation of Accreditation was approved for the next decade. All outcomes were consistent with the briefing provided to the regents at the last ASAR. Provost Holloway recognized Joe Suilmann and Pamela Cheek for their efforts.

Member Comments – None.
Advisor Comments – None.

V. Action Items:

A. Summer Degree Candidates

TAB B

Finnie Coleman, Faculty Senate President

Motion to Approve: Regent Brown

Second: Provost Holloway

Motion: Approved

B. Posthumous Degree Request for Jackson Weller

TAB C

Chris Baca, Manager, Student Success

Motion to Approve: Provost Holloway

Second: Regent Brown

Motion: Approved

VI. Information Items:

A. Research and Public Service Projects Update

TAB D

James Holloway, Provost & EVP for Academic Affairs

Matthew Munoz, Associate Director, Office of Government Relations

- 2020 Research and Public Service Projects Legislative Priorities include:

Network of Educators	\$426,619
NM PBS	\$1,113,800 (\$100,000 Expansion)
Substance Use Disorder Grand Challenge	\$250,000
Native American Studies	\$250,000
Project NM Graduates of Color	\$185,850
Utton Center	\$650,000 (\$278,100 Expansion)
Shelter and Dignity	\$371,212
UNM-LA Workforce Development	\$92,150

B. General Education Enhancement Initiatives

TAB E

Pamela Cheek, Associate Provost for Curriculum & Assessment

- General Education Initiatives include:
 - ✓ Ease of transfer within the state
 - ✓ Training initiatives for Teaching Assistants in collaboration with CTL
 - ✓ 2019 Lobo Experience: Species in Peril along the Rio Grande
 - ✓ Educational Tie-in with Grand Challenges and with Adobe Creative Cloud
 - ✓ R1 HSI focus on a) undergraduate research and b) race and social justice
 - ✓ American Public and Land Grant Universities – Student Experience Project on removing barriers to underserved students

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C. Grand Challenges - Sustainable Water Resources **TAB F**

Kerry Howe, Professor and Director of the Center for Water and the Environment

- Presented on Sustainable Water Resources.

D. Grand Challenges – Successful Aging

TAB G

Janice Knoefel, Professor, Neurology

- Presented on Successful Aging.

E. “Stimulating Conversation in Aphasia”

Jessica Richardson, Professor, Speech and Hearing Sciences

- Presented on “Stimulating Conversation in Aphasia”.

F. “Researching LGBTQI+ Issues in Counseling” **TAB H**

Kris Goodrich, Department Chair, Individual, Family, Community Education

- Presented on “Researching LGBTQI+ Issues in Counseling”.

VI. Public Comment – None.

VII. Adjournment

Motion to Approve: Staff Council President Ryan Gregg

Second: Regent Brown

Motion: Approved

TAB B

2019 Fall Degree Candidates

Finnie Coleman, Faculty Senate President

(Materials to be provided)

Rationale for Deletion of the Associate of Science in Health Information Technology at UNM Valencia

This program was developed with SUN PATH grant funds, which enabled us to hire a full-time faculty member to develop the program and work towards accreditation. Due to budgetary and other implications, we did not pursue the accreditation process through the Commission on Accreditation for Health Informatics and Information Management (CAHIIM) that is necessary for students completing the program to sit for the nationally recognized industry credential RHIT (registered health information technician).

Currently, students who wish to complete and sit for the exam have to transfer to an accredited Health Information Technology program. This will allow them to sit for the industry credential and gain employment in a hospital setting.

From AY 2016 – AY 2020 there have only been thirteen students seeking their degree in Health Information Technology. Unfortunately, these students will be required to transfer to another institution and graduate from there in order to be eligible to sit for the RHIT exam.

Deleting the associate degree in HIT and adopting the certificate in HIT will allow more students the opportunity to complete more quickly and gain employment in an entry-level position as a medical insurance biller and coder – positions that do not require students to sit for the RHIT credentialing exam. This change will also increase the likelihood of gaining more students in the program as they will complete more quickly with the certificate. Having the associate's degree without the ability to sit for the exam is doing students a disservice.

At this time, there are only three students left at UNM-Valencia who have declared this major. As all of the classes are online, they will be able to finish the program through UNM-Gallup. (Our original full-time instructor has moved to UNM-Gallup and teaches many of these courses.) Of course, if a student needs a course that is a part of UNM-Valencia's requested HIT certificate program, they can take that course through UNM-Valencia. UNM-Valencia will be able to run the certificate program with adjunct instructors only.

FSCC FORM C 2402:

“Race & Social Justice Undergraduate Certificate”

4 classes/3 different departments, B or better

**12-credit transcribed interdisciplinary certificate through the
Institute for the Study of “Race” & Social Justice (More info: race.unm.edu)**

***Special thanks to Dr. Scarlet Higgins, Chair and Farah Nousheen, Academic Advisor,
UNM Women Studies Program for providing Curricular Administrative/Advising Home***



Visit and join our listserve: race.unm.edu; **First in the country!!!**

Race and Social Justice Graduate Certificate Approved in 2016: 27 admissions; 6 graduates in 3 years!

12-credit Undergraduate Certificate

- Transcribed credential for 4 undergraduate level courses in three different disciplines (already offered); 50% upper division 300/400-level
- **Recruiting tool, attracts graduate students, increases student credit hours, research shows these types of courses advance student success**
- Gives graduates a workforce advantage
- **Race and Social Justice is an established expertise at UNM and the certificate allows us to stand out among our peers**
- The certificate is available only to students admitted to an undergraduate degree program, and may not stand alone.
- **No budget implications as courses already exist**
- Deans, Colleges, Universities across the country trying to mimic our own success: 27 admissions and 6 graduates in three years for graduate certificate first in the country) –
- **IF APPROVED WE WILL AGAIN BE FIRST IN THE COUNTRY!**

STUDENT LEARNING OUTCOMES

- investigating and interpreting the social construction of race in a given socio-historical context
- reflecting on the premises, concepts and categories used in different disciplines to conceptualize race, institutional/ structural racism.
- cross-disciplinary critical appraisals, investigations and applications of theories of race, racialization, decolonization and social justice across a variety of social domains and institutions.
- expose students to a **vibrant interdisciplinary community** of scholars at the University of New Mexico doing research, teaching and service in the area of race and social justice.



THANK YOU! FOR MORE INFO & TO SUPPORT THE INSTITUTE VISIT: race.unm.edu

Visit: race.unm.edu

TEN YEAR ANNIVERSARY

INSTITUTE ACTIVITIES (2009-2019)

- 2009 Study Group (20 scholars)
- 2010 Working Group (15 scholars including doctoral students developed transdisciplinary guidelines on race research)
- 2009-2010 Lecture Series - cutting edge conceptualizations of race in econ, genetics, history, typically attracted 70-audience participants from community, students scholars
- 2011 National Institutes of Health funded workshop resulted in book 2011-2013 Rutgers University Press Mapping Race Critical Approaches to Health Disparities Research
- 2011 Census Symposium 2011 (150 participants including former director of the Census and current staff at OMB as well as researchers); Evaluations were that this was the best symposium that they had attended, need more time
- 2012-2014: Co-sponsored lectures with Centro de la Raza
- 2014 NM Statewide Race, Gender, Class Data Policy Consortium
- 2018 Hosted Critical Race Studies in Education Association
- 2016 Race and Social Justice: Interdisciplinary Insights Project
 - Faculty Working Group (18 scholars)
 - Lecture Series (4/21/16@4pm, Dr. Nana Osei-Kofi, #FightRacism: Teaching for Social Justice)

INVITE: Next Meeting W 2/19, 12-1pm, SSC1 1061, Race and Social Justice Across the Disciplines: Academic Justice, Academic Rights for Students, Faculty and Staff (Lunch Provided-No RSVP Required; Everyone is always welcome!)

2016 Race & Social Justice Interdisciplinary Insights Faculty Collective (over 20 faculty)

Deliverable: SLO & Collective Syllabi; [visit race.unm.edu](http://visit.race.unm.edu)



Special Thanks to Teaching Allocation Grant (TAG) 2016
Division of Equity and Inclusion

Next Mtg: 2/19, 12-1pm SSCI 1061, Lunch provided. Everyone Welcome!

STRATEGIC OPPORTUNITY

The proposed certificate formally recognizes the specialized knowledge that many current undergraduate students are already completing at UNM but lack any official mechanism for certifying this specialization and expertise on their transcripts.

STUDENT LEARNING OUTCOMES

- (1) Students will illustrate and interpret the historical, political, social, psychological, cultural, and/or economic **dimensions of race, racialization, difference and power**, integrating these into an **interdisciplinary perspective**;
- (2) Students will read write about, discuss, and **engage in critical scholarly inquiry, problem-solving and public presentations** related to race and social justice;
- (3) Students will acquire a basic level of knowledge about U.S. and/or **local, global social justice movements** that are anchored in racial justice;
- (4) Students will be aware of opportunities to **go from theory to practice by exposure to community-engaged research** and teaching opportunities as well as career and post-graduate opportunities their certificate makes possible.

Partial List Classes (more than 80 classes already exist. More info: race.unm.edu)

*****FOUR CLASSES/3 DIFFERENT DEPARTMENTS/GRADE OF B OR BETTER;
50% UPPER DIVISION*****

AFST	307	Blacks in the Southwest
AMST	185	Race, Class, Ethnicity
ARTH	429	Colonial Art of the Hapsburg Period
ENGL	479	Postcolonial Literature
CCS	342	Race, Culture, Class in New Mexico History
CJ	393	Multiculturalism, Gender and Media
HIST	474	Slavery and Race Relations in the Americas
LLSS	393	Anti-racist Education
NAS	322	Principles of Native American Law
POLI	309	Black Politics
SOC	420	Race and Inequality
SOC	430*	Intersectionality: Race, Gender, Class for Social Policy *=available for grad credit
WMST	325	Race, Class and Feminism

THE BENEFITS

- Encourages and attracts interdisciplinary research collaborations and community partnerships across colleges and departments that can lead to enhanced research funding and training for graduate students
- Enhances UNM's profile as a destination university for cutting edge scholarship, teaching and praxis on race and social justice. Other universities trying to replicate

Reconsidering Student Evaluations (EvalKit)

STATEMENT FROM THE AMERICAN SOCIOLOGICAL ASSOCIATION (ASA)
September 9, 2019 (**endorsed by 17 other Scholarly Associations**)

- describes the **current use** of student evaluations of teaching as **“problematic”**
- identifies ways to use student feedback appropriately as one part of **holistic assessment** of teaching effectiveness in institutions of higher education.
- Preponderance of research has demonstrated **that student evaluations of teaching (SETs) are weakly related to student learning**
- **biased against women and people of color.**
- **consequences for who gets hired, who gets tenure, and whose contracts are renewed.**

– [More info: https://www.asanet.org/press-center/press-releases/reconsidering-student-evaluations-teaching](https://www.asanet.org/press-center/press-releases/reconsidering-student-evaluations-teaching)

ACCOUNTABILITY & ASSESSMENT

- Student and Alumni Evaluation (Exit Survey)
- Assessment of Student Learning Outcomes (2019-2020 Assessment Pilot underway for U.S. Global Diversity will be modified for race courses-Email nlopez@unm.edu or neely@unm.edu, if you want to volunteer)
- Examine dept.-level and college-level impact of this certificate on undergraduate applicant pool, enrollments, student credit hours and matriculation;
- Assess short-term and long-term impact on student success and reduction of complex inequalities by retention and graduation (e.g., complex social locations: Race-gender-first generation college status; examine reductions in complex inequalities/intersectionality)
- Create a community of practice around student success and race and social justice interdisciplinary learning outcomes
- Academic program review every 7-10 years

LOGISTICS

- Interdisciplinary Certificate housed in College of Arts and Sciences and Staffed by Women Studies Undergraduate Coordinator (Farah Nousheen, Administrative Staff)
- Course resource/advising worksheet guide for undergraduate students
- Faculty Advisor (Dr. Nancy López)
- To Support the Work of Institute Visit UNM Foundation:
<https://www.unmfund.org/fund/institute-for-the-study-of-race-and-social-justice/>

Institute webpage: race.unm.edu

THANK YOU!

INSTITUTE FOR THE STUDY OF "RACE" & SOCIAL JUSTICE
UNIVERSITY OF NEW MEXICO

For more information visit: race.unm.edu

FORM C PROPOSAL TO CREATE A 12-CREDIT "RACE & SOCIAL JUSTICE
INTERDISCIPLINARY UNDERGRADUATE CERTIFICATE" (TRANSCRIPTED)

Last updated October 31, 2018

EXECUTIVE SUMMARY

The 12-credit transcribed interdisciplinary "Race & Social Justice" Undergraduate Certificate is designed as an area of specialization for students pursuing a bachelor's degree in disciplines in the humanities, social sciences, fine arts, or the professional schools at the University of New Mexico. Against the backdrop of contemporary and on-going historic racial inequities in housing, health, education, employment and criminal justice, the certificate provides students the opportunity to become part of a vibrant interdisciplinary community as they complete an education program that is anchored in a *critical* examination of normative understandings of contemporary and historic racial inequalities. It is important to underscore the word *interdisciplinary* as this would be one of the few certificates that intentionally leverages multiple disciplines for advancing knowledge in race and social justice. This will be particularly attractive to both U.S. and international students seeking the benefits of cross-disciplinary dialogues, reflection and collective insights that are facilitated when faculty and students from different disciplines converge to explore the contours of race and social justice in the U.S and global context. While other universities and colleges offer trans- or cross-disciplinary undergraduate certificates in race, human rights, ethnicity or social justice (e.g., Arizona State University, University of Colorado, Denver, University of Texas, Austin), we were the first to establish an interdisciplinary graduate certificate in "Race & Social Justice." In two years we have admitted 19 students and we have had 5 graduates of the graduate certificate. If approved, we would also be the first in the country to establish the interdisciplinary "Race & Social Justice" Undergraduate Certificate. A google search on 10/31/18 revealed that no other university in the U.S. and beyond has an undergraduate certificate entitled "Race and Social Justice." Several universities including the University of Texas-Austin Generation Equity Initiative have inquired about how we established this certificate as they are also considering instituting a similar opportunity for their students. If approved UNM would be the only university to offer an undergraduate certificate in race and social justice.

The following are key student learning outcomes:

- (1) Students will illustrate and interpret the historical, political, legal, social, psychological, cultural, and/or economic dimensions of race, racialization, difference and power, integrating these into an interdisciplinary perspective;

- (2) Students will read write about, discuss, and engage in critical scholarly inquiry, problem-solving and public presentations related to race and social justice;
- (3) Students will acquire a basic level of knowledge about U.S. and/or local, global social justice movements that are anchored in racial justice;
- (4) Students will be aware of opportunities to go from theory to practice by exposure to community-engaged research and teaching opportunities as well as career and post-graduate opportunities their certificate makes possible.

The transcribed certificate positions our undergraduates to stand out among potential applicants for academic, policy and other social service employment. The critical thinking and analytical skills that students will develop will prepare them to compete in the multicultural workforce and international and global job markets that increasing values interdisciplinary approaches. A Google search for jobs in "racial justice jobs" found over 987 hits; about half of these jobs were entry level (Last accessed 10/31/18 at <http://www.indeed.com/q-Racial-Justice-jobs.html>). A common theme in these job postings is a demand for professionals in the non-profit and government sectors that have the ability to understand, do research and influence social and public policy to promote social justice for racially marginalized groups. The city of Seattle, WA has launched a race and social initiative that seeks employees with training in race and social justice. Similarly job searches positions in public policy, urban planning, human relations, criminal justice, social work, K-12 and higher education administration, seek applicants that demonstrate this expertise. The City of Albuquerque opened an office for equity and inclusion in 2018.

The proposed certificate formally recognizes the specialized knowledge that many undergraduate students are already completing at UNM but lack any official mechanism for certifying this specialization and expertise on their transcripts. Students are very interested in having a specialization that helps them stand out in the job market. We have a list of undergraduate students that have expressed an interest in this specialization and we have gathered email and contact information at a number of recent UNM events including the 2018 Critical Race Studies in Education Association Conference that we hosted at UNM.

It is important to highlight that the proposed certificate does not duplicate any existing undergraduate certificate and all of the courses that have been identified as meeting the student learning outcomes for the certificate already exist in a variety of graduate programs across diverse disciplines, departments and colleges at UNM. We have identified over two-dozen courses that meet the learning outcomes for the undergraduate certificate. For a complete list of courses see appendix. We anticipate being able to offer the proposed graduate certificate as early as Fall 2019 (if approved). Students who are graduating in Spring 2020 may apply for this certificate provided that they have completed the application and required coursework. It is important to underscore that this is not a stand-alone certificate; it is only open to currently enrolled undergraduate

students at UNM. We have met with University Advising and we have secured administrative support for the certificate from the Director of University Advising (See letter from Laura Valdez). We hope that this certificate will help improve UNM's enrollment challenges as more students seeking these types of learning opportunities will consider UNM an attractive place to do their undergraduate studies. Most importantly there is a wide interdisciplinary evidence base of research that shows that exposure to courses on race, power and social justice enhance critical thinking, engagement and student success for all students and especially for those students that have traditionally been underrepresented in higher education. Many campus leaders across the university have endorsed the potential transformative potential of these courses. We have also appended letters of support from the chairs/directors/program Diversity Council, Office of the VP for Equity and Inclusion, Center for Teaching and Learning, Health Sciences VP Office for Diversity, Equity and Inclusion, VP for Research and the Health Inclusion Vibrancy Equity (HIVE) collective.

The interdisciplinary "Race & Social Justice" Undergraduate Certificate will contribute to the development of critical and analytical thinking and praxis (dialogue, reflection and action) that can have a transformative and lasting impact on society. The certificate provides students the opportunity to become part of a vibrant interdisciplinary community as they complete an education program that is anchored in a critical examination of normative understandings of contemporary and historic racial inequalities. A common thread in critical approaches to the study of race and social justice is the deep commitment to scholarship that examines alternatives to the status quo, and illuminates potential for social change that creates a more perfect union for all. The overarching aim of the program is to provide a coherent, interdisciplinary grounding in race and social justice scholarship that enhances their knowledge and analytical abilities and simultaneously creates an intellectual community among faculty and graduate students sharing similar scholarly interests. Ten years from now we will know that we have been successful because our certificate earning graduates will be engaged in advancing innovative solutions to entrenched racial inequities in their respective diverse professions across a variety of fields including education, housing, employment, law enforcement and health.

INSTITUTE FOR THE STUDY OF "RACE" & SOCIAL JUSTICE

PROPOSAL FOR 12-CREDIT INTERDISCIPLINARY "RACE & SOCIAL JUSTICE" UNDERGRADUATE CERTIFICATE

1. Program Description and Purpose

1. What is the program and why should we offer it? Include the program's major goals.

The 12-credit interdisciplinary "Race & Social Justice" Undergraduate Certificate is a transcripted certificate that recognizes advanced cross-disciplinary undergraduate

expertise and training in the area of race and social justice. The key student learning outcome includes investigating and interpreting the social construction of race in a given sociohistorical context as well as reflecting on the premises, concepts and categories used in different disciplines to conceptualize race and racism. Other major student learning outcomes include critical appraisals, investigations and applications of theories of race, racialization, decolonization and social justice across a variety of social domains and institutions.

There are several reasons why the proposed undergraduate certificate adds value to UNM's portfolio of innovative, interdisciplinary, community engaged scholarship and praxis:

1. Transcribed Certificate Formally Acknowledges Student Specialization

The proposed certificate formally recognizes the work that many undergraduate students are already completing but lack any formal mechanism for certifying this specialization and expertise on their official transcripts or on their curriculum vitae. It is important to highlight that the proposed certificate does not duplicate any existing undergraduate certificate and all of the courses that have been identified for the certificate already exist across a variety of undergraduate programs across diverse disciplines, departments and colleges at UNM. These courses exist in several colleges spanning the College of Education, College of Arts and Science, Business School, Community and Regional Planning, and the College of Fine Arts. An array of departments are represented in the list of courses identified for the certificate including: Anthropology, Political Science, Sociology, American Studies, Communication and Journalism, Language Literacy and Sociocultural Studies, among many other departments. I have also emailed all the chairs of departments and programs that have courses on the list of potential courses to confirm they are interested in having their courses listed. Again we hope that this certificate will enhance enrollment in all departments that offer courses on race and social justice.

2. Enhances UNM Brand as a World Class University; First Interdisciplinary "Race and Social Justice" Undergraduate Certificate in the Country

Innovation and forward-thinking strategic programs are the hallmark of twenty-first century universities. As a research one university in majority minority state with one of the most diverse student populations in the country, UNM has a strategic opportunity to serve as an incubator for high quality interdisciplinary, research, teaching and praxis in the area of race and social justice. An undergraduate certificate in this area will allow UNM to establish a national and international reputation for this specialization. While other universities and colleges offer interdisciplinary undergraduate certificates in related areas, our proposed certificate will brand UNM as a leader and cutting edge hub of interdisciplinary research in this area (See Appendix A: List of

Undergraduate Certificates in Other Universities). The Institute for the Study of "Race" & Social Justice is the first in the country to be dedicated to both establishing empirical, conceptual and methodological clarity about race that is also explicitly interdisciplinary and committed to engaging issues of policy, pedagogy and praxis. Indeed our Internet search of similar programs has yet to uncover any other Institutes graduate or undergraduate certificate entitled, "Race & Social Justice," making UNM the first in the country to establish this brand. As director and co-founder of the Institute I receive frequent inquiries from other universities seeking to establish a similar opportunity for their students. I am proud that in only two years of existence we have admitted 19 students in the 15 credit graduate certificate and we have graduated 5 certificate earners. We expect similar number for the undergraduate certificate. The undergraduate certificate will require minimal staff time as no application will be necessary. Students who express interest will simply indicate this interest to their advisor so that they can receive the designation on their transcript. The Institute for the Study of "Race" & Social Justice will hold information sessions for interested student once a year to explain the benefits of the certificate. We are proud that Dean Ochoa at the College of Education has agreed to designate advisors to assist with the production of a facts sheet that can be made available to all undergraduate via a listserve and on our website.

3. Cumulative Deep Interdisciplinary Learning and Long-term Value-Added for both Students and Faculty Success; Nurtures Diverse Scholarly Communities of Solutions-Oriented Practice

We believe that the value-added by the proposed undergraduate certificate is cumulative and multifaceted as both prospective and current undergraduate students as well as prospective, current junior and senior faculty will not only be attracted to UNM but they will thrive in a vibrant and innovative community that embraces engaged and solutions-oriented scholarship that builds on interdisciplinary knowledge, teaching and practice in race and social justice. Both domestic and international students and faculty will find the proposed undergraduate certificate in race and social justice particularly appealing because it is anchored in leveraging the interdisciplinary insights on race and social justice and the value-added via the convergence of scholarship, teaching and community engagement.

Ten and twenty years from now we will know that we have been successful because we will observe an increase in the work that our alumni will be engaged in. This certificate also reflects our commitment to inclusive excellence-namely the idea that excellence and inclusion are interdependent (For definition of inclusive excellence visit: diverse.unm.edu as well as <http://www.du.edu/cme/resources/inclusive-excellence.html>). Most importantly, because it is an interdisciplinary certificate, the proposed undergraduate certificate in race and social justice has the potential to create a welcoming scholarly home and community for diverse undergraduate students and faculty who will be attracted to UNM because our public face will

demonstrate that we value innovative interdisciplinary research, teaching and service in the area of race and social justice. This brand will be particularly attractive to those students and faculty interested in community engaged research as well as those students and faculty that come from racial and ethnic as well as other communities that continue to experience historic and on-going racialized inequities in education and other policy arenas. The certificate will create the structural conditions for innovation and simultaneously enhance the retention of students who may lack a community of scholars and researchers interested in race and social justice within traditional discipline-specific departments. Unless deliberate programs are developed that attract diverse undergraduate students and expose them to the potential to engage in academia, we will continue to see little progress in reducing the racial achievement gap in six-year graduation.

The Value-Added for the New Mexico Context:

Challenges & Opportunities for Race & Social Justice Scholarship & Praxis

The overall focus of the certificate is to address pressing concerns regarding racial inequities and social justice in the 21st Century. This certificate is of particular relevance to New Mexico. As a majority minority state we face multiple challenges and opportunities for ameliorating contemporary and historic inequalities among racial and ethnic marginalized communities. According to the New Mexico Kids Count 2015 Report, New Mexico has the 2nd highest poverty rate in the nation with 21% of children living at or below the poverty rate. We also have the 2nd highest rate of working families who are low income (42%). Not surprisingly, New Mexico also ranks 49th in child wellbeing. Data from the Population Reference Bureau from the U.S. Census 2008-2013 found disturbing patterns of racial and ethnic inequities for children growing up in concentrated poverty. Specifically, 59% of Native American, 25% of Hispanic, 20% of Black and 10% of White children grow up in concentrated poverty (See: <http://www.nmvoices.org/wp-content/uploads/2015/09/LHHS-Presentation-9-21-15.pdf>). Moreover the 2014 Mission Graduate Report finds that while 4% of Whites living in the state have less than a high school education, for Hispanics this figure is 24% (see 2013 Charting Our Course Report, Website: missiongraduate.org). These challenges can be opportunities for innovation via high quality research and practice that builds on connecting scholarship on race and social justice across the disciplines.

This certificate can serve as a catalyst for change in policies, programs, and practices in our state and beyond. We anticipate that students that complete this certificate will be part and parcel of empowering local communities and improving measurable outcomes for diverse communities vis-à-vis P-20 education, health, criminal justice, housing, employment and wealth. It is our hope that this certificate program can fill an urgent need for an incubator for new ideas, policies and practices that will benefit the people of the state of New Mexico and beyond.

4. How does the program fit within the participating unit's future plans?

The Institute for the Study of "Race" and Social Justice was established in January 2009 with seed funding from the RWJF Center for Health Policy. On April 1, 2015 with the anticipated sunset of the RWJF Center for Health Policy, which reported to the Office of the Vice President for Research, the RWJF Center transitioned to the College of Arts and Sciences and the Institute also transitioned to the College of Arts and Sciences but was no longer a part of the RWJF Center for Health Policy. The Institute currently operates an innovative unfunded intercollege, interdisciplinary Institute with faculty from a variety of colleges and disciplines (Note: From January 2009-March 2015 the Institute existed as an initiative under the RWJF Center for Health Policy. We never had our own index and all funds were run through existing indexes for the RWJF Center for Health Policy. With the move of the RWJF Center for Health Policy, we created our index created on April 1, 2015. This Index has always been administered in Sociology because that is the tenure home of Dr. Nancy López, Director and Co-founder of the Institute. This is no way should be interpreted as representing an initiative of the Sociology Department).

The Institute currently includes ten voting members of our advisory board. The duties of the advisory board include functioning as the executive committee for Institute operations and membership and budget oversight. The Institute also has over twenty non-voting affiliated faculty that participate in general meetings on race and pedagogy, race and interdisciplinary insights as well as seminars, lectures and activities, potlucks organized by the institute. It is important to note that the Director and co-founder of the Institute does not have any operating or research funds or course release.

The Institute mission is to promote the establishment of empirical, theoretical and methodological clarity about "race" that draws on cutting-edge thinking from multiple disciplines and diverse empirical traditions. The Institute seeks to develop ways of empirically measuring "race" and assessing racialization processes in order to develop strategies for ameliorating race-based inequality. We place "race" in quotes to underscore its nature as a socially constructed category of social status in particular historical contexts, rather than as a reified category that is essential or fixed. Despite the fact that "race" is neither rooted in biology (or genetics) or fixed in time and space, racial inequality persists and often remains at the root of socioeconomic inequality, education and health disparities and other measurements of social stratification in the United States (More info included in the 2010 transdisciplinary guidelines for researching race available on Institute webpage available at: race.unm.edu).

Over the last nine years the Institute has sponsored a study group, speakers series, transdisciplinary working group that came to a consensus and produced

“Transdisciplinary Guidelines for Researching ‘Race,’” among other activities. We have also been active in ongoing national debates regarding how racial and ethnic measurements will be counted for the 2020 census and sponsored an interdisciplinary symposium at UNM in September 2011 that included the former director of the Census and key personal in the Office of Management of Budget, current staff at the Census as well as diverse leading scholars across the disciplines with expertise on underrepresented groups, such as Native Americans, Latinas and Latinos and Asian Americans, etc.. We also convened an American Sociological Association Working Group (2012) that forwarded a memo to the Census offering recommendations on the on-going tests in questionnaire formats for the race and ethnicity questions that included major proposed changes to the Census.

With support from the National Institutes of Health we convened an interdisciplinary workshop with leading scholars on health disparities on the topic of conceptualizing race across the biological, health and social sciences in 2012. Part of the deliverables of this conference included a peer-reviewed co-edited volume entitled, “Mapping ‘Race’: Critical Approaches to Health Disparities Research (2013),” which was recently reviewed in the American Journal of Sociology (2015) and described as “necessary reading” and “masterful” precisely because the interdisciplinary contributions in the volume included innovative models for measuring and conceptualizing race that are only possible through the convening of scholars across the disciplines. In 2018 we hosted the Critical Race Studies in Education Association Conference entitled: “Land and Knowledge: Indigeneity, Survivance and Healing.” We are also partnering with North Carolina Central University, a Historically Black College that is offering a undergraduate fellowship that involves an 8-week training in NCCU as well as year long mentoring in critical race theory and education. The objective of this fellowship is to create the next generation of diverse scholars that advance Research to improve academic outcomes of PK-20 African American, Latina/o, Native American and other underrepresented Youth and Young Adults.

Building on these interdisciplinary initiatives in July 2014, the Institute applied for Agency for Health Research Quality (AHRQ) National Institutes of Health (NIH) grant to harmonize race, gender, and class data collection in the state for equity-based policy. Although the proposal was not funded, in July 2014 we launched the New Mexico Statewide Race, Gender, Class Data Policy Consortium in July 2014, the first of its kind in the nation. Although the Consortium has only been in existence for just over four years, in partnership with a number of UNM and statewide research centers, we have already improved the collection of detailed parental educational attainment on all UNM applications beginning Fall 2015. We have also been working with LGBTQ Resource Center on improving data on these communities. We have also produced a study on race-gender-class gaps in NM higher education that revealed the complex inequalities in a large public university in NM that we presented to UNM administration (peer-reviewed article published in *Race, Ethnicity and Education*, 2017). It is our hope to

advance the harmonization of race, gender, class, LGBTQ data collection for equity-based policy and practice in education, health and beyond. Because all Institute and Consortium faculty are volunteers, we have also established a UNM Fund with the UNM Foundation so that we can enhance the sustainability of the Institute and Consortium and provide fellowships, awards and activities to students (April 1, 2015). See attached Form D for the previously approved "Race and Social Justice Graduate Certificate" and appendices with information and flyers and other Institute/Consortium deliverables and publications or visit: race.unm.edu.

Through support from the Center for Teaching Allocation, the Institute hosted a lecture on fighting racism in Spring 2016. The Institute for the Study of "Race" & Social Justice convened the faculty collective several times over the Spring 2016 and Fall 2016 for Working Lunch Meetings with support from Teaching Allocation Committee and the Deans Office in the College of Arts and Sciences. Members of the Working Group represented a broad cross-section of colleges and departments including American Studies, Architecture and Planning, Communication and Journalism, Political Science, Sociology, Education, Peace Studies, Women Studies, Medicine, etc. We actively working to solidify our portfolio of advisory board members, affiliated faculty, students, staff and community members.

When the Institute transitioned to the College of Arts and Sciences it was considered an unfunded tier-one research Institute with an Index that was administered by Sociology. In Fall 2015 the Institute submitted a form C to create the race and social justice interdisciplinary graduate certificate, which was approved in Spring 2016. We began accepting applications in Fall 2016. To date we have admitted 19 applicants and we have graduated 5 certificate earners as Fall 2018.

Our future plans for the Institute include continuing our lecture series on cutting edge approaches to researching race and obtaining research grants for undergraduate students to conduct interdisciplinary research on race and social justice. Another major goal of the Institute is to connect undergraduate students with faculty mentors that can guide interdisciplinary workshops on race and social justice. To that end with support from the Division of Equity and Inclusion our next Institute general meeting for affiliated faculty, students and community is 11/8/18@12-1pm in SSCO 1061. Everyone is welcome!

How does the program fit within the UNM mission and strategic plan? Does this program address particular research priorities?

The interdisciplinary strength of the proposed undergraduate certificate strategically positions UNM as a convergence space for innovation and discovery in addressing the ongoing racial inequalities in housing, health, education, employment and criminal justice, etc. The New Mexico context is ripe for innovation in high quality research and praxis in the area of race and social justice. Among the challenges that remain are historic

and contemporary gaps in educational attainment, income and wealth among racial and ethnic minority groups such as Native Americans, Hispanics and Blacks. The proposed certificate will provide a meeting space for innovations and solutions-oriented approaches to multiple inequities experienced by entire categories of people; it also adds to the portfolio of work already underway in the Innovation Academy. We intend to apply for the Grand Challenge opportunity and participate in the 2020 Redesign discussions already underway.

The high-quality and innovative curriculum along with potential research synergies that emerge from this proposed certificate will contribute to UNM's brand as a destination university and leader in interdisciplinary teaching and research. More importantly, this certificate will provide students with the tools to engage in creative solutions to entrenched and long-lasting racial inequities that have the potential to inform policies and practice that advance transformations in historic and contemporary inequalities. It is our hope that the interdisciplinary certificate will create bridges of understanding and dialogue among race scholars across disciplines and create scholarly homes for both students and faculty, who would not otherwise engage in regular interdisciplinary conversations.

2. Does the program overlap or duplicate any existing program within UNM? In the state and/or region?

Currently there is no overlap with any other undergraduate certificates in at UNM or any of the other certificates at universities in the state. While there are other undergraduate certificates in Race or Social Justice, if this proposed certificate is established at UNM we would be the first in the country.

5. What is the governance structure of the program?

The Institute for the Study of "Race" and Social Justice Advisory Board will govern the certificate. The director of the Institute will serve as the director of the program. As previously mentioned, for any given academic year (Fall 2019-Spring 2020, one Institute Advisory member will be appointed as the Faculty Advisor. Each Spring a new advisor will be appointed by the Institute Advisory Board for a term beginning in July of that year through June of the following year. All past and current faculty and staff advisors will be posted on the Institute website: race.unm.edu.

The criteria for appointing members of the Institute for the Study of "Race" and Social Justice Advisory Board as well as a number of affiliated faculty across the colleges at the University of New Mexico is that the nominated faculty member have a record of accomplishments in race and social justice in their research, teaching and service and participate in Institute activities. Many of these faculty also offer courses that contribute to the interdisciplinary "Race & Social Justice" Undergraduate and Graduate Certificate." The advisory board functions as the executive committee with voting rights. Terms are for three years and renewable.

The Institute for the Study of “Race” and Social Justice consists faculty with a record of scholarship, research, publications, teaching and service in the area of race and social justice. These members are: Dr. Ricky Lee Allen, Associate Professor, Language, Literacy, Sociocultural Studies, College of Education; Dr. Lisa Cacari-Stone, Associate Professor, Family and Community Medicine Department, School of Medicine; Dr. Shiv Desai, Assistant Professor, Teacher Education and Educational Leadership and Policy, College of Education; Dr. Shinsuke Eguchi, Associate Professor, Communication and Journalism; Dr. Kiran Katira, Director, Community Engagement Center and Instructor, Peace Studies, College of Arts and Sciences; Dr. Karla Kingsley, Associate Professor, Teacher Education and Educational Leadership and Policy, College of Education; Dr. Jamal Martin, Director, Peace Studies; Lecturer III, Africana Studies, College of Arts and Sciences; Clinical Assistant Professor Family and Community Medicine Department, School of Medicine; Dr. Nancy López, Professor, Sociology, College of Arts and Science; Director & Co-founder, Institute for the Study of Race and Social Justice, RWJF Center for Health Policy; Founding Coordinator, New Mexico Statewide Race, Gender, Class Data Policy Consortium; Dr. Glenabah Martinez, Associate Professor, Language, Literacy and Sociocultural Studies; Dr. Steven Verney, Associate Professor, Psychology, College of Arts and Sciences. Emeritus Advisory Board Members include: Dr. Anne Simpson, Professor, Internal Medicine, Geriatrics; Vice Chancellor for African American Health; Director, Institute for Ethics, School of Medicine.

Through a grant from the Teaching Allocation Committee in Spring 2016 and Fall 2016 we convened a group of affiliated faculty from multiple disciplines and developed a cross-disciplinary syllabi that included readings with enduring insights for race and social justice from over 20 disciplines. For a complete list of affiliated faculty visit: race.unm.edu.

6. For interdisciplinary programs, describe the responsibilities of each participating unit?

The 12-credit transcribed interdisciplinary “Race & Social Justice” Undergraduate Certificate” will not require formal responsibilities from participating units. As previously mentioned, University Advising in the College of Arts and Sciences, and specifically the advisor in charge of the interdisciplinary undergraduate certificates has agreed to provide administrative support by alerting all advisors about the certificate and providing each of them with a fact sheet regarding the requirements for the certificate. No application will be required for any student that has taken courses on the approved list available at: race.unm.edu.

7. What is the program development and implementation timeline?

Conceived as an interdisciplinary experience a total of 12 of undergraduate level credits will be required (e.g., a total of four classes in three different departments/disciplines). No more than six (6) credits can be completed in the same department, including the student's home department. If a student is interested in applying three (3) independent study credits including field courses, the student should seek approval from the faculty advisor *before* initiating the independent study. While students can request that independent study courses count toward the certificate, it will be subject to the approval by the faculty advisor. It is important that students meet with the faculty and staff advisor at the beginning of the certificate program of study so that they can design a coordinated course of study for the student.

Who may participate?

The 12-credit transcribed interdisciplinary "Race & Social Justice" Undergraduate Certificate is open to all undergraduate students currently enrolled in any college or school at the University of New Mexico in any degree program. It not a stand-alone undergraduate certificate and therefore not open to nonmatriculated students. Please keep in mind that for some of the preprofessional undergraduate programs, there may be prerequisites and/or restrictions on enrollment for specific courses. For more information about course enrollment restrictions by individual programs, please consult the course catalog and class schedule.

APPLYING FOR THE CERTIFICATE

The certificate is only available to current undergraduate students already matriculated in an undergraduate degree-granting program (e.g. bachelors degree program) at the University of New Mexico, regardless of field of study. No application is necessary. Just meet with your advisor and they can certify that you have taken four courses from the approved list (most be in three different departments). Only courses with a grade of B or better will count towards the certificate credits. For a current listing of the faculty and staff advisor, please visit: race.unm.edu. You are strongly encouraged to complete this process before you have completed more than three (3) credits toward the certificate.

2. Student Impact

1. How many students are projected to enroll?

We expect 15-20 students to enroll in any given year.

2. From where will these students be drawn?

Undergraduate students from a variety of undergraduate programs have expressed interest in applying for the transcribed interdisciplinary "Race & Social Justice" Undergraduate Certificate. These students span the social sciences including, anthropology, economics, sociology,

psychology, as well as the fine arts and professional schools including business, public health, nursing, law, etc. After completing this certificate, students will have a firm foundation in understanding race as a social construction and a relationship of power. Students will be better prepared to compete for academic positions and/or work that require these skill sets.

3. What are the demographic characteristics and educational goals of the target students?

We expect this certificate will be of interest to an array of students from diverse racial, ethnic, class, sexual orientation and other backgrounds; this certificate will be particularly attractive to students from traditionally racially and ethnically underrepresented backgrounds, particularly for undergraduate students who may be the first in their families to have access to higher education. This is particularly relevant in New Mexico as over the last several decades our six-year graduation rates have been less than 50% when you look at aggregate figures (See recent study on race-gender-class gaps in NM published by Nancy López, Christopher Erwin, Melissa Binder and Mario Chavez in *Race, Ethnicity and Education* 2017). This figure goes down dramatically when we look at graduation rates for racial and ethnic minority students; specifically Native American, Hispanic and Black Students have substantially lower graduation rates. This undergraduate certificate would help engage those students interested in conducting collaborative, participatory, community-engaged research that may inform the local community, policy makers and equity-oriented research and praxis in a variety of fields. Furthermore there is a broad based evidence-based literature that provides evidence that courses focused on race, racism and social justice are more successful in graduating students than course that talk about culture but do not directly address racism, power, inequality and social justice.

4. What are the employment goals of the typical target student?

This certificate will be attractive to future scholars, journalists, policy makers, social workers, teachers, lawyers, and teachers alike. It may be particularly attractive to those seeking public office and careers in public service who hope to arrive at large scale solutions to entrenched historic and contemporary inequalities in many policy arena such as early childhood and education, health and housing as well as employment and criminal justice.

We also expect that many of these students will seek to work in professions that are directly serving underrepresented racial and ethnic communities and particularly those that are planning to engage in policy-relevant research on inequities in education, health, housing, criminal justice as well as public service.

3. Curriculum Plan

1. Describe the curriculum and its impact on existing courses, including courses in other departments. NOTE: Certificates with new courses must be reviewed by the HED.

As previously mentioned, all of the courses for the certificate already exist in the UNM catalog. We include a list of courses that we have identified as meeting the requirement (See Appendix).

RESTRICTIONS: We strongly believe in the power of interdisciplinary insights for advancing deep understanding and critical thinking about race and social justice. Students that are traditionally siloed in a given field such as social sciences, education, ethnic studies, health sciences, humanities, and professional schools, benefit from exposure to other disciplines, epistemologies, ontologies, research methods, praxis and vis-a-versa. In order to ensure meaningful interdisciplinary experience, students will have to take four courses in three different departments/disciplines. No more than six (6) credits of the total twelve (12) credits toward the certificate may be from the same department. This includes a maximum of three (3) credits of independent study and/or field experience. Please keep in mind that each department may have restrictions on student enrollment from other departments. Students may transfer up to three (3) credits from a previous undergraduate program; however the restrictions mentioned above will still apply.

2. What instructional model(s) will be used in delivering the program?

The interdisciplinary list of courses cover a variety of instructional modes for delivery the program. The gamut spans from seminar with a focus on reading, critical dialogue and research papers to praxis oriented workshops that focus on community-based action research. Because no more than six of the twelve credits, including an independent study, required for the certificate can be in one department we will ensure that students have exposure to all types of instructional modes including pedagogies anchored in on-going critical reflection, dialogue and action.

3. What are the expected student learning outcomes for the program? How will the learning outcomes be measured?

A major goal of the certificate is to provide students with the opportunity to critically interrogate the relationship between race and social justice theory and practice, while coming to broader understandings of how to connect research on racial inequities to inform research and practice that can be translated into their communities. This can be the beginning steps toward self-reflexivity that encourages students to reconsider/rethink the

relationship between race and social justice and how communities are affected by inequities related to race across a variety of policy arenas.

The program consists of several student learning outcomes:

- (1) Students will illustrate and interpret the historical, political, legal, social, psychological, cultural, and/or economic dimensions of race, racialization, difference and power, integrating these into an interdisciplinary perspective;
- (2) Students will be able to critically read/write about, discuss, and engage in scholarly inquiry, problem-solving and public presentations related to race and social justice;
- (3) Students will acquire a basic level of knowledge about U.S. and/or local, global social justice movements that are anchored in racial justice;
- (4) Students will be aware of community-engaged research and teaching opportunities as well as career and post-graduate opportunities their certificate makes possible.

4. Budgetary Impact

1. How many faculty are necessary for program delivery and what are their qualifications?

It is important to highlight that the proposed certificate does not duplicate any existing undergraduate certificate and all of the courses that have been identified as meeting the student learning outcomes for the certificate already exist in a variety of undergraduate programs across diverse disciplines, departments and colleges at UNM.

2. How will this program affect the workload of current faculty and support staff?

Again, all of the courses already exist so it will not require any new courses. We anticipate 15-20 students seeking this certificate every year. No application will be necessary. Students who express an interest will meet with the staff advisor and declare their interest in the transcribed certificate. The advisor will consult the approved course list on race.unm.edu. Since there is no application the amount of work for staff advisor to certify that students have taken four courses on the list of approved courses is minimal. While the faculty advisor assigned to respond to questions about the certificate in any given year will experience a modest increase in advising load, this responsibility will rotate yearly among members of the Institute Advisory board and the volume of work would fall in the realm of regular advising duties.

3. Will additional faculty or staff be required? What is the cost?

No additional faculty will be required. No application is required for the certificate. Minimal staff support for advising will be required. Interested students will only need to identify the courses that they believe meet the certificate requirements and their advisor can certify that they have met the requirements and note this on their transcript upon graduation (e.g. taken four classes on the list of approved courses and that they are in three different disciplines).

4. What faculty and staff development services will be needed?

No additional faculty will be required. Members of the Institute Advisory will serve as the faculty advisors.

5. What impact will enrollments in the certificate program have on student support (GA &TA positions, scholarships, etc.)?

This certificate will not have any impact on student support, GA or TA positions.

6. What technology, media, equipment and instructional supplies are needed to reach these learning outcomes? Are these resources available? What is the estimated cost?

Again, since all of these courses already exist, we do not anticipate that any of these courses will require any additional equipment or instructional supplies. We do provide information on videos that students can access for free via YouTube or on our website: race.unm.edu.

7. Are there any needs for additional or renovated space?

No.

8. What student support services are likely to be needed and to what extent (tutoring, library, IT, advising, etc.)? What is the estimated cost?

There will not be any need for additional student support services beyond those already available to undergraduate students in the student resource center and libraries will be necessary.

9. Provide a rationale for any course fees or other expenses (in addition to tuition) that students will be expected to cover.

Not applicable.

5. Accreditation Plan

1. How does the program affect any existing accreditation and licensure requirements?

Not applicable.

2. If new accreditation is required, describe the accreditation process and the expenses involved

Not applicable.

6. Additional Information

- a. Provide any additional information needed to make the case for development of a full proposal. (*For full proposal, provide any additional information to support the request for the proposed degree program.*)

EVALUATION AND ASSESSMENT

Every three years we will send the four student learning outcomes to all instructors teaching courses listed as part of the certificate. We will ask them to voluntarily include questions on EvalKit on these learning outcomes. In addition, every five years the Institute will designate an assessment committee to assess the long-term impact of the certificate program by tracking the types of job placement and substantive work pursued by certificate earners five years after the certificate has been earned. In order to ensure quality control, the student learning outcomes for the certificate will be continually assessed and updated to build on the lesson learned from previous assessments with the overall goal of creating improvements in student success.

PROPOSED CATALOG NARRATIVE

Updated 10/31/18

The Race and Social Justice Certificate aims to expose students to a vibrant interdisciplinary community of scholars at the University of New Mexico doing research, teaching and service in the area of race and social justice.

The key student learning outcomes include investigating and interpreting the social construction of race in a given socio-historical context as well as reflecting on the premises, concepts and categories used in different disciplines to conceptualize race and racism. Other major student learning outcomes include cross-disciplinary critical appraisals, investigations and applications of theories of race, racialization, decolonization and social justice across a variety of social domains and institutions.

The certificate is available only to students admitted to an undergraduate degree program, and may not stand alone.

The certificate requires completion of 12 credit hours from a list of approved courses. Up to 6 credit hours may be completed in one department, including a maximum of 3 credit hours of independent study. Courses may double-count with major or elective requirements.

A list of approved courses, and information for the Race and Social Justice faculty and staff advisors, may be found at the Institute for the Study of "Race" and Social Justice Website: race.unm.edu.

PROPOSED CATALOG NARRATIVE

Updated 3/14/19; 4/29/19

The Race and Social Justice Certificate aims to expose students to a vibrant interdisciplinary community of scholars at the University of New Mexico doing research, teaching and service in the area of race and social justice. All students are invited to apply (e.g., STEM, Humanities and Arts, Social Sciences, Health Sciences and all preprofessional programs).

The key student learning outcomes include investigating and interpreting the social construction of race and power in a given socio-historical context as well as reflecting on the premises, concepts and categories used in different disciplines to conceptualize race and institutional/structural racism. Other major student learning outcomes include cross-disciplinary critical appraisals, investigations and applications of theories of race, racialization, decolonization, resistance and social justice across a variety of social domains and institutions.

The certificate is available only to students admitted to an undergraduate degree program, and may not stand alone.

The certificate requires completion of 12 credit hours from a list of approved courses. Up to six credit hours may be completed in one department, including a maximum of three credit hours of independent study. A minimum of six credits must be completed at the upper division (300-level or above). No more than six credits may be lower division classes. Courses may double-count with major or elective requirements.

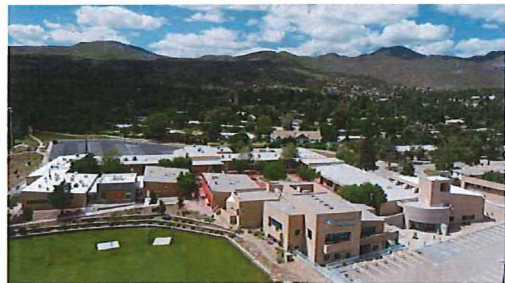
A list of approved courses, and information for the Race and Social Justice faculty and staff advisors, may be found at the Institute for the Study of “Race” and Social Justice Website: race.unm.edu.



NM LOS ALAMOS

UNM-Los Alamos

- **Commitment to serve workforce needs of local and regional community**
- **Two large employers in the community**
 - Los Alamos National Laboratory (LANL)
 - Newport News Nuclear BWX Technologies (N3B)
- **Employers interested in providing educational opportunities for both new and incumbent employees**



NM LOS ALAMOS

Proposed New Programs

Working with both LANL and N3B, the following programs have been proposed:

- Radiation Control Technician (RCT), Certificate
- Waste Operator Technician, Certificate
- Nuclear Enterprise Science and Technology (NEST), Certificate
- Nuclear Enterprise Science and Technology (NEST), Associate of Applied Science

Note: All three certificate programs can be stacked with the AAS degree.



Radiation Control Technician (RCT) Certificate

- **Rationale:**
 - Provides trained technicians for N3B to meet employment needs
 - Provides students with a university credential and training for a career
- **Potential Students and Expected Workforce Outcomes:**
 - Residents of Northern New Mexico looking to obtain certification in a high demand field
 - Forty trained RCTs within one year
- **Budget Impact:**
 - No impact on department budget
 - No specialized equipment required
 - Workforce Innovation and Opportunity Act (WIOA) and N3B paying tuition



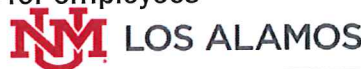
Waste Operator Technician Certificate

- **Rationale:**
 - Provides trained technicians for N3B to meet employment needs
 - Provides students with a university credential and training for a career
- **Potential Students and Expected Workforce Outcomes:**
 - Residents of Northern New Mexico looking to obtain qualification in a high demand field
 - Forty trained waste operators within one year
- **Budget Impact:**
 - No impact on department budget
 - No specialized equipment required
 - Workforce Innovation and Opportunity Act (WIOA) and N3B paying tuition



Nuclear Enterprise Science and Technology Certificate

- **Rationale**
 - Provides trained technicians for LANL to meet anticipated employment needs
 - Provides students with a university credential and training for a career
- **Potential Students and Expected Workforce Outcomes**
 - Residents of Northern New Mexico seeking education and training in Nuclear Enterprise Science and Technology
 - 800 trained nuclear workers within five years, fulfilling local need
- **Budget Impact**
 - No impact on department budget
 - No specialized equipment required
 - LANL has tentatively discussed \$125,000 and \$150,000 program support for NEST Certificate and Associate programs
 - Tuition reimbursement for employees



Nuclear Enterprise Science and Technology Associate of Applied Science

- **Rationale**
 - Stackable credentials from technician certificates (RCT, Waste Operator, and NEST).
 - Provides trained technicians for LANL and N3B to meet anticipated employment needs
 - Provides students with a university credential and training for a career
- **Potential Students and Expected Workforce Outcomes**
 - Residents of Northern New Mexico seeking education and training beyond certificate programs
 - Employment with LANL, N3B and other local contractors
 - Job opportunities throughout Department of Energy sites
- **Budget Impact**
 - No impact on department budget
 - No specialized equipment required
 - LANL has tentatively discussed \$125,000 and \$150,000 program support for NEST Certificate and Associate programs
 - Tuition reimbursement for employees



Nuclear Enterprise Science & Technology Associate of Applied Science Degree (60 cr)

<p>General Ed & Technical Electives (22)</p> <ul style="list-style-type: none"> Communications (3) Mathematics (3) Social & Behavioral Sci (3) Humanities (3) Additional Gen (3) Electives (7) 	<p>Technical Core (18) </p> <ul style="list-style-type: none"> NFFW 1110 Nucl Facility Fundamentals (5) ASFD 1110 Intro to Actinide Sci (5) CHEM 1215 General Chem I (3) CHEM 1225L General Chem II Lab (1) PHYS 1115 Survey of Physics (3) PHYS 1115L Survey of Phys Lab (1)
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Nucl Material Handler Technician Concentration (LANL)

Nucl Material Handler Technician (20)

NEST Certificate (also includes NFFW and ASFD from above)

- NFFW 1120: Fissionable Mater. Handler (5)
- NFFW 1120L: Fissionable Mater. Handler Lab (5)
- ASFD 1120: Nucl Mater.Process Techniques (5)
- ASFD 1120L: Nucl Mater. Process Lab (5)

Haz Matl Mngt & Waste Technol Technician Concentration (N3B)

Hazardous Matl Mngt & Waste Technol Technician (20)

RCT Certificate

- RCTB 1110: Rad Control Tech (9)
- RCTB 1110 L Rad Control Tech Lab (1)

OR

Nuclear Waste Operator Certificate

- NWOB 1110: Nucl Waste Operator (9)
- NWOB 1110 L: Nucl Waste Operator Lab (1)

- = NEST Certificate (30 cr)
- = N3B Certificate (10 cr)
- = UNM Courses (30-50 cr)

- BIOL 1140: Biol for Health Sciences (3)
- BIOL 1140L: Biology for Sciences Lab (1)
- GEOL 1120: Environmental Geology. (3)
- GEOL 1120L: Environmental Geology Lab (1)
- BSTC 113: Intro to Project Management. (1)
- BSTC 118: Conflict Resolution for Workplace (1)

Form C: Certificate in Radiation Control Technology

UNM Los Alamos is asking permission to create a Certificate in Radiation Control Technology.

Program Description: The UNM-Los Alamos Boot Camp is an intensive twelve-week boot camp non-registered apprenticeship/certificate program training Radiation Control Technicians. As designed, this is a 10-credit hour program that allows students to obtain an academic credential to enter the workforce after twelve intensive weeks of coursework and on-the-job training. The program was designed in partnership with local agencies. Program curriculum is based upon the Department of Energy (DOE) Radiological Control Technician Handbook. Graduates are prepared to take the DOE certification exam in Radiological Control.

Catalog Description: The Certificate in Radiation Control Technology is designed for students who would like to obtain a credential in Radiation Control Technology and are seeking qualification for entry-level work in Radiation Control Technology or plan to continue on to obtain a higher credential in radiation control. The program prepares students to monitor environmental radioactivity levels, respond in emergencies, and to perform decontamination procedures. This is an apprenticeship program. Enrollment into the program is dependent upon acceptance into an approved RCT apprenticeship program with local employers.

Certificate Requirements: This is a technician certificate, focusing upon skills needed to enter the workforce in the Radiation Control field. The program requires: a minimum of 10-credit hours (9-credit hours of coursework and a 1-credit hour lab with field experience). The field experience includes approximately 100 hours of on-the-job training with local radiation control technicians and experts. Program content is based upon Department of Energy Radiological Control Technician Training Handbook. Students completing the program are prepared to take the DOE certification exam and will be prepared to work as radiation control technicians at national facilities. Students should earn a cumulative grade point average of 2.5. Minimum grade of C (not C-) in each Technical Core course.

Specific Degree Requirements:

RCTB 101 Radiation Control Technician Boot Camp (9 credit hours)

RCTB 101L Radiation Control Technician Boot Camp Lab/Field Experience (1 credit hour)

Total Credit Hours

10 Credit Hours

Program Learning Goals: The Radiation Control Technician Boot Camp program provides students with quality instruction in preparation for successful employment in entry-level radiation control technician positions. The course syllabi include course-learning objectives indicating the skills and behaviors the student should know and be able to perform upon successful completion of the boot camp program. Upon successful completion of the required courses for the RCT boot camp certificate, students will demonstrate:

1. Workplace skills specific to RCT careers.
2. Knowledge of industry standards including monitoring radioactivity levels, and performing decontamination processes.
3. Basic knowledge of rules and procedures to ensure community, personal, and workplace safety.
4. Team-building and communications skills; the basics of a good work ethic; and successful job-seeking strategies.
5. Students will be prepared for the certification exams specific to the industry.

Assessment: UNM Los Alamos participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules and relevancy of the program and courses to current workforce demands and transfer programs. Courses and programs are realigned, eliminated or revised to meet market demand. We will conduct the first review in the second year of the certificate to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with our Assessment coordinator, Dr. Irina Alvestad, to conduct academic program assessment on this program.

Long-term Planning and Budgetary Impact: Due to the apprenticeship style program, enrollment will be limited initially to the number of students N3B is able to train and employ. Initially the enrollment will be limited to 5 to 10 students. As the program grows and we identify additional apprenticeship opportunities, we anticipate enrollment increasing. The RCT certificate will be under the Applied Sciences index at UNM-LA. The overall budget for Applied Sciences currently includes salaries for two .5 FTE continuing faculty, one .5 FTE in welding and one in Robotics, one term contract faculty in welding, a welding lab supervisor and adjunct faculty as needed. The budget for this area will be increased to provide additional adjunct faculty as needed to cover any additional courses as the program evolves.

Justification for Adding Certificate in Radiation Control Technology UNM-Los Alamos Campus

Executive Summary: The proposed certificate program in Radiation Control Technology (RCT) is designed to provide students wishing to enter the workforce in the field of Radiation Control Technology with an academic certificate in the field. This certificate will allow students to enter the workforce as beginning RC technicians after twelve weeks of intensive university level courses (10 credit hours) and on-the job training. The curriculum, designed by the Department of Energy (DOE), as training for all RCTs working in DOE facilities, will also allow students wishing to pursue additional coursework to ladder their credentials and pursue an Associate's degree in related programs.

Program Description: In response to a request from N3B, the Legacy Cleanup Contractor assigned to Los Alamos, UNM-Los Alamos (in partnership with N3B) has developed an intensive twelve week boot camp non-registered apprenticeship/certificate program training entry-level Radiation Control Technicians. As designed, this is a 10-credit hour program that allows students to obtain an academic credential to enter the workforce after twelve intensive weeks of coursework and on the job training. The program was designed in partnership with N3B and is based upon the urgent need to fill entry level positions for radiation control technicians in northern New Mexico. Both N3B and Los Alamos National Laboratory have expressed urgent needs to fill positions in radiation control. Letters of support from both N3B and Los Alamos National Laboratory are attached.

The academic program curriculum is based upon the U.S. Department of Energy Radiation Control Technician Training modules and consists of meeting in a classroom four days a week for twelve weeks and one day a week on the job training at N3B facilities and job sites for the laboratory portion of the program. Students leave the boot camp style program trained to enter the workforce as entry level radiation control technicians and are prepared to take the DOE RCT certification exam. Additionally, in partnership with N3B, this boot camp is considered a nonregistered apprenticeship program. In consultation with New Mexico State Cabinet Secretary Bill McCamley, UNM-Los Alamos and N3B are pursuing state funding for this apprenticeship program, including WIOA funding for those who qualify. As part of this program, participants are employed by N3B and will receive a wage (greater than \$18.50 per hour) to complete this boot camp program. Upon completion of the program, participants begin full-time employment with N3B as entry level RCTs. This students will be paid a living wage while in the program and will see increase in wages when they have completed the program and passed the DOE certification exam. Students in this boot camp commit to one year of employment with N3B in Los Alamos. This program addresses an employment gap in Northern New Mexico at multiple DOE facilities and with N3B. Students who complete the program will be trained for environmental management and cleanup. The program does not require previous nuclear experience.

This program aligns to UNM-LA's mission to provide "innovative, rigorous, and affordable education opportunities to build essential foundations for transfer, leading-edge career programs, and life-long learning opportunities . . ." by providing a pathway for a career.

Not every student is ready or desirous to obtain a full associates' or bachelors' degree. This certificate will provide an opportunity to obtain an academic credential after only twelve weeks of RCT boot camp and on the job training for those students whose need is to enter the workforce in a more efficient time-frame. This program aligns to UNM Los Alamos' strategic plan by helping to facilitate progress toward educational objectives (Student Excellence), and developing a program to aid in workforce development (Community Excellence). These goals align with UNM's mission to provide students with . . . "knowledge and skills that they need to be enlightened citizens, to contribute to the state and national economies and to lead satisfying lives".

This certificate program is designed to provide students with hands-on skills-based learning techniques in the field of radiation control. This certificate will allow students to enter the workforce as professional RCTs and to complete the national RCT certification exam. This certificate will also allow students wishing to pursue additional coursework to ladder their credentials and pursue an Associate's degree in related programs, such as Nuclear Technicians. The major goal of the program is to fulfill an urgent community need to fill job vacancies in radiation control.

Catalog Description: The Certificate in Radiation Control Technology is designed for students who would like to obtain a certificate in radiation control technology and are seeking qualification for entry level work in Radiation Control Technology or plan to continue on to obtain a higher degree in radiation control. The program prepares students to monitor environmental radioactivity levels, respond in emergencies, and to perform decontamination procedures.

Program Content: This is a technician certificate, focusing upon skills needed to enter the workforce in the Radiation Control field. The program requires: a minimum of 10 credit hours (Nine credit hours of coursework and one credit hour lab with field experience). The field experience includes approximately 100 hours on the job training with local radiation control technicians and experts. Program content is based upon Department of Energy Radiological Control Technician Training Handbook. Students completing the program are prepared to take the DOE certification exam and will be prepared to work as radiation control technicians at national facilities.

RCTB 101 Radiation Control Technician Boot Camp (9 credit hours)

RCTB 101L Radiation Control Technician Boot Camp Lab (1 credit hour)

Total Credit Hours

10 Credit Hours

Program Learning Goals: The Radiation Control Technician Boot Camp program provides students with quality instruction in preparation for successful employment in entry-level radiation control technician positions. The course syllabi include course-learning objectives indicating the skills and behaviors the student should know and be able to perform upon

successful completion of the boot camp program. Upon successful completion of the required courses for the RCT boot camp certificate, students will demonstrate:

1. Workplace skills specific to RCT careers.
2. Knowledge of industry standards including monitoring radioactivity levels, and performing decontamination processes.
3. Basic knowledge of rules and procedures to ensure community, personal, and workplace safety.
4. Team-building and communications skills; the basics of a good work ethic; and successful job-seeking strategies.
5. Students will be prepared for the certification exams specific to the industry.

Evidence of Need: This program is designed to develop skills that will assist students in gaining employment within the State of New Mexico, and nationally, at various DOE facilities and with DOE contractors and subcontractors such as N3B, Los Alamos National Laboratory and Sandia National Laboratory. N3B is planning to hire five to ten RCTs immediately, and indicated a need to hire over forty RCTs for the Los Alamos operations. A routine search for RCT job postings in New Mexico indicates Los Alamos National Laboratory, has job postings for level 2 RCTs (some work experience) at a minimum starting salary of \$46,400 to maximum starting salary of \$71,400 and level 3 or 4 RCTs needed at a beginning salary between \$55,400 and \$88,000. Compa Industries (Sub contractor for Los Alamos National Laboratory) is advertising job openings for Radiological Control Technicians; Nuclear Waste Partnership in Carlsbad, New Mexico has active job posting for RCTs. Nationally, postings for RCTs include Richland, Washington, Oak Ridge, Tennessee, Grantsville, Utah, and Idaho Falls, Idaho.

UNM LA has many non-traditional students; the average age of our students is 27. Often, these students are first generation college students, trying to work full or part time while attending school; these students may not have the time or energy to devote to two years of full time course work to obtain an Associate's degree. A certificate in Radiation Control Technology will allow students to enter the workforce after twelve weeks of intensive college courses and still obtain an academic credential. Adding this certificate will help fulfill the state initiative of increasing the number of citizens with post-secondary awards and will fill an employment gap currently existing in Northern New Mexico. Increasing the number of graduates with a post-secondary certificate will also aid in the *Mission: Graduate Program* (goal of 60,000 additional graduates by the year 2020)¹. This certificate will provide students with an option to earn a certificate and enter the workforce with a credential; this will allow for higher paying employment and reduce the need to leave the state for job opportunities. Many of our students are adults who have already earned other degrees, but who want to add the credentials that are specific to Radiation Control Technology.

UNM Los Alamos has partnered with N3B, to develop this non-registered apprenticeship/certificate program. Additionally, UNM-Los Alamos works closely with recruiters and managers at Los Alamos National Laboratory to determine regional workforce

¹ Rick Nathanson | Journal Staff Writer. "Updated: Uptick in College Grad Rate Falls Short." *Albuquerque Journal*. N.p., n.d. Web. 21 Sept. 2017

needs. This program will address the needs of students to maintain income while attending school and trains the students with an employable skill. The program benefits the greater Northern New Mexico region by providing much needed Radiation Control Technicians to meet the employment needs of national labs and DOE contractors.

Other Programs: No other HEI within commuting/driving distance of Los Alamos offers a boot camp style non-registered apprenticeship certificate program in Radiation Control Technology. Northern New Mexico College offers a 30 credit hour year-long certificate in Radiation Control Technology and a two-year Associate of Applied Science in Radiation Control Technology. One other institution in New Mexico (New Mexico Junior College), offers an RCT program. However, this institution is not within commuting distance of Los Alamos. Nationally, College of Eastern Idaho, Aiken Community College and Lakeshore Community college also offer RCT training programs.

Rationale: The rationale for offering a Radiation Control Technician certificate program at UNM-Los Alamos is multi-faceted. First, we are a community college that strives to meet the needs of our students and our local community. Our community partners, N3B and Los Alamos National Laboratory, have indicated an urgent need for trained radiation control technicians in this area. Adding an apprenticeship/ boot camp style certificate program provides an opportunity for students to obtain an academic credential while learning an employable skill and a pathway for entry into the workforce. This program also addresses basic financial needs of students by paying them a living wage (N3B) while they attend class.

The average age of UNM-LA students is 27, and eighty percent of our students are part-time, with employment and family obligations that prevent them from relocating for educational purposes. These students are looking for education and employment within their own community. By offering the certificate locally, we meet the needs of our student and local populations. Our students need programs in the local area that will allow them to pursue educational objectives while working. Workforce training programs such as this will help retain talent in the local community.

An additional rationale for offering a Radiation Control Technician program in Los Alamos is our connection to Los Alamos National Lab and N3B. The UNM- Los Alamos RCT Boot camp program is unique in the state due to our connection with N3B. The course instructor is a certified Radiation Control Technician, currently working with N3B. Our students will graduate with skills that meet national radiation control specifications and will be prepared to take the national DOE certification exam. These additional skills will increase the graduates' knowledge and therefore increase the probability of employment in the local area.

This program also aligns with New Mexico Workforce Solutions Secretary Bill McCamley's initiatives to design and implement apprenticeship type programs in the state of New Mexico.

Finally, the State of New Mexico has insufficient supply of trained Radiation Control Technicians to meet the employer demand for these positions. The number of job openings around the state indicates that the supply of trained RCTs is insufficient to meet demand. However, adding this certificate will enable those students to meet their educational and workforce goals.

Institutional Readiness: UNM Los Alamos has partnered with N3B to create this boot camp certificate program. Students will focus on the academic/classroom portion of the program on UNM-LA campus, four days per week, for twelve weeks. Students will spend one day per week of the twelve week program with N3B mentors, working one on one at the N3B facilities, in an apprenticeship type program. No other university resources will be required. Instructors will be teaching from the DOE Radiation Control Technician Handbook, using materials prepared by the DOE for the purpose of training Radiation Control Technicians to work in DOE facilities. The Handbook includes basic math and communication skills as well as technical training for the field work.

Facilities: All field work/laboratory training will occur off site during the apprenticeship portion of the program. No lab facilities will be needed on campus. Standard classroom facilities and supplies will be provided to the class instructor. We do not anticipate the need for additional equipment or space in the first five years of the program, as we plan to use the facilities currently in place. The class will not be using consumable supplies, therefore, no course fees are anticipated.

Evaluation and Assessment: UNM Los Alamos participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules and relevancy of the program and courses to current workforce demands and transfer programs. Courses and programs are realigned, eliminated or revised to meet market demand. We will conduct the first review in the second year of the certificate to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with our Assessment coordinator, Dr. Irina Alvestad, to conduct academic program assessment on this program.

Required Resources: Adding this program will not require additional resources from UNM Los Alamos. As part of the partnership agreement with N3B, N3B will be covering the cost of the instructor.

Projected Enrollment and Costs: Due to the apprenticeship style program, enrollment will be limited initially to the number of students N3B is able to train and employ. Initially the enrollment will be limited to five to ten students. As the program grows and we identify additional apprenticeship opportunities, we anticipate enrollment increasing.

The RCT certificate will be housed under the Applied Sciences index at UNM-LA. The overall budget for Applied Sciences currently includes salaries for two .5 FTE continuing faculty, one .5 FTE in Welding and one in Robotics, one term contract faculty in welding, a welding lab supervisor and adjunct faculty as needed. The budget for this area will be increased to provide additional adjunct faculty as needed to cover any additional courses.

RCT Boot Camp Program Proposal, Addendum Program Alignment with DOE Standards

In designing this RCT Boot camp program, Department Of Energy guidelines/standards were considered and incorporated into the program design. This program is a partnership between N3B and UNM-Los Alamos.

Primary standards as set forth by the DOE are listed and addressed below.

DOE standard requires "Instructor Training and Qualification"; instructors are to be appropriately qualified.

N3B will provide qualified, experienced Radiation Control Technicians as instructors, subject to approval by Dean of Instruction at UNM-Los Alamos. The Dean of Instruction will review the resumes, work experience, education, certifications, and background of suggested instructors and verify the appropriate qualifications. If the instructor meets qualifications for teaching in the RCT program, a Letter of Academic Title will be issued to the instructor.

*The DOE curriculum is divided into phases. The Academic phase is "phase I".
The academic part of the training typically requires 240 hours of classroom instruction.*

Minimum Math Skills required: Prior to being accepted into the program, applicants will take the Accuplacer and must test to at least the Intermediate Algebra level to be admitted into the program.

The proposed boot camp program is a 10 credit hour program, with 1 credit hour lab/field experience and 9 credit hours of classroom work. However, the actual contact hours in the classroom and on the job training far exceed the academic credit hours.

The 9 credit hour in-class portion meets four days a week for eight hours a day for twelve weeks. This schedule creates 384 hours of actual in-class instruction on the topic of Radiation Control. Additionally, students are assigned two hours of out of class work for each credit hour per week, or a minimum of eighteen hours of out of class/homework/reading etc per week for the twelve weeks, or 216 hours of out of class assignments in the subject matter. Combined, this creates 600 hours of exposure to the content.

Phase II is practical training

The field experience/on the job training is also significantly higher for actual hours than academic credit hours. For the field experience/on the job training portion of this program, participants will train at N3B for one week (40 hours) prior to class beginning and eight hours per week for the next twelve weeks for a minimum of 136 hours of on the job training.

Phase III consists of Oral Boards

This phase will occur after students have completed their academic coursework and first twelve weeks of on the job training. After they complete the program, students will work with their employer, N3B to participate in the oral boards.

The required examinations are specified by the DOE. LANL has a system of examinations that meet the DOE standards.

N3B has an agreement with LANL to share materials, including exams. N3B will verify that their employees are tested appropriately.

	2019-2020 YEAR 1	2020-2021 YEAR 2	2021-2022 YEAR 3	2022-2023 YEAR 4	2023-2024 YEAR 5
Operating Expenses	\$550	\$550	\$550	\$550	\$550
Faculty Salaries	\$50,245.60 total for department \$0 of this amount is for RCT faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for RCT faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for RCT faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for RCT faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for RCT faculty. Program is partnership with N3B. N3B providing faculty.
Staff Salary –	n/a	n/a	n/a	n/a	n/a
TPT Salaries	n/a	n/a	n/a	n/a	n/a
Total I&G Budget	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60
Changes to current allocation of funds					
External resources/funds	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.
Anticipated tuition	To be determined. Current UNM –LA tuition for 10 credit hours is \$875.	To be determined. Current UNM –LA tuition for 10 credit hours is \$875.	To be determined. Current UNM –LA tuition for 10 credit hours is \$875.	To be determined. Current UNM –LA tuition for 10 credit hours is \$875.	To be determined. Current UNM –LA tuition for 10 credit hours is \$875.

<p>Anticipated course fees (with rationale)</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>
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Requesting Certificate to be added Fall 2019.

Form C: Certificate in Nuclear Waste Operator

Program Description: The UNM-Los Alamos Boot Camp certificate program is an intensive twelve-week boot camp non-registered apprenticeship/qualification program training Nuclear Waste Operators. As designed, this is a 10-credit hour certificate program that allows students to obtain an academic credential to enter the workforce after completion of coursework and on-the-job training. The program was designed in partnership with local agencies to fulfill a local workforce need. Program curriculum is designed to meet the training and qualification requirements for positions at nuclear facilities in accordance with DOE Hazard Category 2 Nuclear Facilities Order 426.2.

Graduates are prepared to take a comprehensive exam for qualified operators. This credential represents successful completion of a course of studies related to the field of Nuclear Waste Operations. It may be used as a terminal credential with subsequent entrance into the work force, or it may form the basis for additional course work leading to an Associate of Applied Science degree in Nuclear Enterprise Science and Technology that is currently being developed, or in other fields.

Catalog Description: The Certificate in Nuclear Waste Operators is designed for students who are seeking to obtain the skills necessary to qualify as entry-level Nuclear Waste Operators or plan to continue on to obtain a higher degree in nuclear waste operations. This apprenticeship program also prepares participants to work in disposing of hazardous materials. Enrollment into the program is dependent upon acceptance into an approved Nuclear Waste Operators apprenticeship program with local employers.

Certificate Requirements: A minimum of 10 credit hours (Nine credit hours of coursework and one credit hour lab with field experience) with a minimum grade point average of 2.7. Students must earn a minimum grade of B- (not C) in each Technical Core course. The field experience includes approximately 100 hours of on-the-job training with local nuclear waste operators and experts.

Technical Course Requirements:

NWOB 1110 Nuclear Waste Operator Boot Camp (9 credit hours)

NWOB 1110LNuclear Waste Operator Boot Camp Lab/Field Experience (1 credit hour)

Total Credit Hours

10 Credit Hours

Program Learning Goals: The Nuclear Waste Operator Boot Camp program provides students with quality instruction in preparation for successful employment in entry-level nuclear waste operator positions. The course syllabi include course-learning objectives indicating the skills and behaviors the student should know and be able to perform upon successful completion of the boot camp program. Upon successful completion of the required courses for the Nuclear Waste Operators boot camp certificate, students will demonstrate:

1. Workplace skills specific to Nuclear Waste Operators careers.
2. Knowledge of industry standards including handling and disposing of hazardous materials.
3. Basic knowledge of rules and procedures to ensure community, personal, and workplace safety.
4. Team-building and communications skills; the basics of a good work ethic; and successful job-seeking strategies.
5. Students will be prepared for a comprehensive exam specific to the industry.

Assessment: UNM-Los Alamos (UNM-LA) participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment, and academic program review, along with all other programs at UNM-LA. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules and relevancy of the program and courses to current workforce demands and transfer programs. Courses and programs are realigned, eliminated or revised to meet market demand. We will conduct the first review in the second year of the certificate to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with our Assessment Coordinator to conduct academic program assessment on this program.

Long-term Planning and Budgetary Impact: Due to the apprenticeship style program, enrollment will be limited initially to the number of students Newport News Nuclear BWX Technologies (N3B) is able to train and employ. Initially the enrollment will be limited to 5 to 10 students. As the program grows and we identify additional apprenticeship opportunities, we anticipate enrollment increasing. The Nuclear Waste Operators certificate will be housed under the Applied Sciences index at UNM-LA. The overall budget for Applied Sciences currently includes salaries for two .5 FTE continuing faculty, one .5 FTE in welding and one in Robotics, a shop supervisor and adjunct faculty as needed. The budget for this area will be increased to provide additional adjunct faculty as needed to cover any additional courses.

Justification for Adding Certificate in Nuclear Waste Operator UNM-Los Alamos Campus

Executive Summary: The proposed certificate program in Nuclear Waste Operator (NWO) is designed to provide students wishing to enter the workforce in the field of Nuclear Waste Operations with a technical-vocational certificate in the field from an academic institution. This certificate will allow students to enter the workforce as beginning nuclear waste operators after twelve weeks of intensive university level courses (10 credit hours) and on-the-job training (OJT). The academic program curriculum is designed to meet the training and qualification requirements for positions at nuclear facilities in accordance with DOE Hazard Category 2 Nuclear Facilities Order 426.2.

This program may be used as a terminal credential with subsequent entrance into the work force, or it may form the basis for additional course work leading to an Associate of Applied Science degree in Nuclear Enterprise Science and Technology that is currently being developed or in other fields.

Program Description: In response to a request from the legacy cleanup contractor, Newport News Nuclear BWX Technologies LLC (N3B) assigned to Los Alamos, partnered with UNM-Los Alamos (UNM-LA) to develop an intensive twelve-week boot camp non-registered apprenticeship/certificate program training entry-level Nuclear Waste Operators. As designed, this is a 10-credit hour program that allows students to obtain an academic credential to enter the workforce after twelve intensive weeks of coursework and OJT. The program is based upon the urgent need to fill entry-level positions for nuclear waste operators in northern New Mexico. Both N3B and Los Alamos National Laboratory (LANL) have expressed urgent needs to fill positions in nuclear waste operations. A letter of support from N3B is included in the full justification. Upon completion of the program, students will be qualified to work as waste operators under DOE Order 426.2 "Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities."

The academic program curriculum is designed to meet the training and qualification requirements for positions at nuclear facilities in accordance with DOE Hazard Category 2 nuclear facilities Order 426.2.

The course structure consists of meeting in a classroom 32 hours per week for twelve weeks and 8 hours a week for OJT at N3B facilities and job sites for the laboratory portion of the program. Students leave the boot camp style program trained to enter the workforce as entry-level nuclear waste operators and are prepared to take a comprehensive exam for qualified operators. Additionally, in partnership with N3B, this boot camp is considered a nonregistered apprenticeship program. In consultation with New Mexico State Cabinet Secretary Bill McCamley, UNM-LA and N3B are pursuing state funding for this apprenticeship program, including Workforce Innovation and Opportunity Act (WIOA) funding for those who qualify. As part of this program, participants are employed by N3B and will receive a wage (greater than \$18.50 per hour) to complete this boot camp program. Upon successful completion of the

program, participants continue full-time employment with N3B as entry level NWOs. These students will be paid a living wage while in the program and will see increase in wages when they have completed the program and passed a comprehensive exam for qualified operators. Students in this boot camp commit to one year of employment with N3B in Los Alamos. This program addresses an employment gap in Northern New Mexico at multiple DOE facilities and with N3B. Students who complete the program will be trained to handle and dispose of hazardous materials. The program does not require previous nuclear experience.

This program aligns to UNM-LA's mission to provide "innovative, rigorous, and affordable education opportunities to build essential foundations for transfer, leading-edge career programs, and life-long learning opportunities . . . " by offering a pathway for a career.

Not every student is ready or desirous to obtain a full associates' or bachelors' degree. This certificate will provide an opportunity to obtain an academic credential after only twelve weeks of Nuclear Waste Operator boot camp and OJT for those students whose need is to enter the workforce in a more efficient time frame. This program aligns with UNM-LA's strategic plan by helping to facilitate progress toward educational objectives (Student Excellence), and developing a program to aid in workforce development (Community Excellence). These goals align with UNM's mission to provide students with . . . "knowledge and skills that they need to be enlightened citizens, to contribute to the state and national economies and to lead satisfying lives."

This certificate program is designed to provide students with hands-on skills-based learning techniques in the field of Nuclear Waste Operations. This certificate will allow students wishing to pursue additional coursework to ladder their credentials and pursue an Associate's degree in related programs, such as Nuclear Technicians. The major goal of the program is to fulfill an urgent community need to fill job vacancies in nuclear waste operations.

Catalog Description: The Certificate in Nuclear Waste Operators is designed for students who are seeking to obtain the skills necessary to qualify as entry-level Nuclear Waste Operators or plan to continue on to obtain a higher degree in nuclear waste operations. This apprenticeship program also prepares participants to work in disposing of hazardous materials. Enrollment into the program is dependent upon acceptance into an approved Nuclear Waste Operators apprenticeship program with local employers.

Program Content: This is a technician certificate, focusing upon skills needed to enter the workforce in the Nuclear Waste Operations field. The program requires: a minimum of 10 credit hours (Nine credit hours of coursework and one credit hour lab with field experience) with a minimum grade point average of 2.7. Students must earn a minimum grade of B- (not C) in each Technical Core course. The field experience includes approximately 100 hours of on the job training with local nuclear waste operators and experts.

Technical Course Requirements:

NWOB 1110 Nuclear Waste Operator Boot Camp (9 credit hours)

NWOB 1110L Nuclear Waste Operator Boot Camp Lab/Field Experience (1 credit hour)

Total Credit Hours

10 Credit Hours

The Nuclear Waste Operator Boot Camp program provides students with quality instruction in preparation for successful employment in entry-level nuclear waste operator positions. The course syllabi include course-learning objectives indicating the skills and behaviors the student should know and be able to perform upon successful completion of the boot camp program.

Upon successful completion of the required courses for the Nuclear Waste Operator boot camp certificate, students will demonstrate:

1. Workplace skills specific to Nuclear Waste Operators careers.
2. Knowledge of industry standards including identifying and disposing of hazardous materials.
3. Basic knowledge of rules and procedures to ensure community, personal, and workplace safety.
4. Team-building and communications skills; the basics of a good work ethic; and successful job-seeking strategies.
5. Students will be prepared for a comprehensive exam specific to the industry.

Evidence of Need: This program is designed to develop skills that will assist students in gaining employment within the State of New Mexico, and nationally at various DOE facilities, and with DOE contractors and subcontractors such as N3B, LANL, and Sandia National Laboratory. There is a high demand for NWOs at DOE Environmental Management and National Nuclear Security Administration sites like Los Alamos. N3B needs 40 trained NWOs over the next 20 months, and, with attrition and expanding mission, will need even more as time progresses.

Someone with this qualification can expect to obtain employment as Waste Handler Technician, Waste Handler, Waste Operator, Waste Specialist, and any variation of a Hazardous Waste Technician in a nuclear or radiological environment. All Department of Energy facilities that generate, handle, or dispose of nuclear waste need these skills. This apprentice will start at \$18.90 an hour (\$39,312.00 annually) with the possibility of increasing to ~\$23.00 an hour (\$46,800.00 annually) when fully qualified.

UNM-LA has many non-traditional students; the average age of our students is 27. Often, these students are first-generation college students, trying to work full or part time while attending school; these students may not have the time or energy to devote to two years of full-time course work to obtain an Associate's degree. A certificate in Nuclear Waste Operators will allow students to enter the workforce after twelve weeks of intensive college courses and still obtain an academic credential. Adding this certificate will help fulfill the state's initiative of increasing the number of citizens with post-secondary awards and will fill an employment gap currently existing in Northern New Mexico. Increasing the number of graduates with a post-

secondary certificate will also aid in the *Mission: Graduate Program* (goal of 60,000 additional graduates by the year 2020)¹. This certificate will provide students with an option to earn a certificate and enter the workforce with a credential; this will allow for higher paying employment and reduce the need to leave the state for job opportunities. Many of our students are adults who have already earned other degrees, but who want to add the credentials that are specific to Nuclear Waste Operators.

UNM-LA has partnered with N3B, to develop this non-registered apprenticeship/certificate program. Additionally, UNM-LA works closely with recruiters and managers at LANL to determine regional workforce needs, which is a provision in the UNM Catalog for offering certificate program of this type that require fewer than 30 credit hours. This program will address the needs of students to maintain income while attending school and trains the students with employable skills. The program benefits the greater Northern New Mexico region by providing much-needed Nuclear Waste Operators to meet the employment needs of national labs and DOE contractors.

Other Programs: No other HEI within commuting/driving distance of Los Alamos offers a boot-camp-style non-registered apprenticeship/certificate program for NWOs. Northern New Mexico College offers programs in Radiation Protection (certificate and AAS) as well as an AAS and BS in Environmental Science. The certificate in Radiation Protection is a 32-hour program that does not specifically cover nuclear waste processing or handling.

ENMU-Roswell offers two programs in related fields: a Certificate of Employability for Certified Occupational Safety and Environmental Technician and an Occupational Safety Engineering and Environmental Management Technologies A.A.S. The 16-hour Certificate of Employability for Certified Occupational Safety and Environmental Technician focuses on “the knowledge and experience workers have in running a health and safety program with the inclusion of environmental management duties. This course of study includes practical applications to regulatory problems and real-world experience in working within a team to complete environmental studies.” The Occupational Safety Engineering and Environmental Management Technologies A.A.S. has defined outcomes of “(a) Demonstrate that they can utilize research and evidence based practice to drive problem solving and integrate value-added practical solutions into organizational goals while meeting OSH performance measures for effective / continual improvement; (b) Apply Professional Communication through effective interaction through training of stakeholders, fellow students, and or faculty, fostering mutual respect, responsible business practices, and shared decision-making to enhance worker health and safety; (c) Demonstrate the ability to identify, apply, and integrate responsible business practices utilizing risk management techniques while conserving asset resources; (d) Demonstrate the ability to develop, articulate and execute a business case for protecting the company’s internal and external assets, employees, stakeholders and the community; (e) Utilize

¹ Rick Nathanson | Journal Staff Writer. "Updated: Uptick in College Grad Rate Falls Short." *Albuquerque Journal*. N.p., n.d. Web. 21 Sept. 2017

Informatics and Data Analysis techniques to make informed data-driven decisions about occupational safety and health threats and hazards; (f) Display the ability to lead and influence the behaviors of individuals, systems, and workgroups in a way that facilitates the achievement of shared corporate goals; and, (g) Identify and distinguish legal, moral, and sustainability principles relevant to the OSH profession.

Neither New Mexico college/university offers a program that is the same as that proposed by UNM-LA and N3B.

Rationale: The rationale for offering a Nuclear Waste Operator certificate program at UNM-LA is multi-faceted. First, we are a community college that strives to meet the needs of our students and our local community. The UNM Catalog provides for certificate programs of this type that require fewer than 30 credit hours, to fulfill a local workforce need. Our community partners, N3B and LANL, have indicated an urgent need for trained nuclear waste operators in this area. Adding an apprenticeship/boot camp-style certificate program provides an opportunity for students to obtain an academic credential while learning employable skills and a pathway for entry into the workforce. This program also addresses basic financial needs of students by paying them a living wage (N3B) while they attend class.

The average age of UNM-LA students is 27, and eighty percent of our students are part-time, with employment and family obligations that prevent them from relocating for educational purposes. These students are looking for education and employment within their own community. By offering the certificate locally, we meet the needs of our student and local populations. Our students need programs in the local area that will allow them to pursue educational objectives while working. Workforce training programs such as this will help retain talent in the local community.

An additional rationale for offering a Nuclear Waste Operator program in Los Alamos is our connection to LANL and N3B. The UNM-LA Nuclear Waste Operators Boot camp program is unique in the state due to our connection with N3B. The course instructors will be N3B employees and SMEs in their fields and will have the qualifications to serve as instructors to teach the material. Students will graduate with skills that meet national nuclear waste specifications and will be prepared to take a comprehensive exam for qualified operators. These additional skills will increase the graduates' knowledge and therefore increase the probability of employment in the local area.

This program also aligns with New Mexico Workforce Solutions Secretary Bill McCamley's initiatives to design and implement apprenticeship type programs in the state of New Mexico. The State of New Mexico has insufficient supply of trained Nuclear Waste Operators to meet the employer demand for these positions. The number of job openings around the state indicates that the supply of trained Nuclear Waste Operators is insufficient to meet demand. However, adding this certificate will enable those students to meet their educational and workforce goals.

Institutional Readiness: UNM-LA has partnered with N3B to create this boot camp certificate program. Students will focus on the academic/classroom portion of the program on UNM-LA campus, 32 hours per week, for twelve weeks. Students will spend 8 hours a week of the twelve-week program with N3B mentors, working one on one at the N3B facilities, in an apprenticeship type program. No other university resources will be required. Instructors will be teaching using materials designed to meet the training and qualification requirements for the Waste Operator position in accordance with DOE Hazard Category 2 Nuclear Facilities Order 426.2.

Facilities: All field work/laboratory training will occur off site during the apprenticeship portion of the program. No lab facilities will be needed on campus. Standard classroom facilities and supplies will be provided to the class instructor. We do not anticipate the need for additional equipment or space in the first five years of the program, as we plan to use the facilities currently in place. The class will not be using consumable supplies, therefore, no course fees are anticipated.

Evaluation and Assessment: UNM Los Alamos participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment, and academic program review, along with all other programs at UNM-LA. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules, and relevancy of the program and courses to current workforce demands and transfer programs. Courses and programs are realigned, eliminated, or revised to meet market demand. We will conduct the first review in the second year of the certificate to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with our Assessment Coordinator to conduct academic program assessment on this program.

Required Resources: Adding this program will not require additional courses to be offered at from UNM-LA. As part of the partnership agreement with N3B, N3B will be covering the cost of the instructor.

Projected Enrollment and Costs: Due to the apprenticeship style program, enrollment will be limited initially to the number of students N3B is able to train and employ. Initially the enrollment will be limited to five to ten students. As the program grows and we identify additional apprenticeship opportunities, we anticipate enrollment increasing.

The Nuclear Waste Operators certificate will be housed under the Applied Sciences index at UNM-LA. The overall budget for Applied Sciences currently includes salaries for two .5 FTE continuing faculty, one .5 FTE in Welding and one in Robotics, a shop supervisor and adjunct faculty as needed. The budget for this area will be increased to provide additional adjunct faculty as needed to cover any additional courses.



Date: OCT 03 2019

N3B-19-0314

Sharon K Hurley, Ph.D., CPA
Dean of Instruction
UNM-Los Alamos
4000 University Drive
Los Alamos, NM 87544

Subject: Workforce Development and Job Training Opportunities

Dear Dr. Hurley:

I am writing to express my appreciation to the University of New Mexico-Los Alamos (UNM-LA) for its participation in the new, innovative waste processing operator certification program during calendar year 2020.

Newport News Nuclear BWXT-Los Alamos, LLC (N3B), a limited liability company owned by HII Nuclear (a division of Huntington Ingalls Industries [HII]) and BWXT Technologies, Inc., brings operational discipline, proven approaches, and predictable results to the \$1.38 billion, 10-year Los Alamos Legacy Cleanup Contract at Los Alamos National Laboratory.

N3B needs a fast-track method to qualify waste processing operators (WPOs) to meet legacy cleanup commitments under our contract. N3B's primary focus is to recruit candidates for the WPO certification program from the northern New Mexico region. Our partnership with UNM-LA is uniquely positioned to create jobs benefitting local communities. The 12-week program will become a repeatable, sustainable way to meet the high demand for WPOs on a recurring basis.

We look forward to working with UNM-LA on this essential certificate program and to collaborating further on meaningful workforce development and job training opportunities.

If you have any questions or need additional information, please contact me at (505) 551-2900 (dorian.newton@em-la.doe.gov).

Sincerely,

A handwritten signature in black ink, appearing to be 'Dorian G. Newton', written over a horizontal line.

Dorian G. Newton, DEng
Director, Technical Services

EL:cg

cc: (date-stamped letter mailed)
Lee Bishop, EM-LA
Selena Fox, EM-LA
Sarah Eli Gilbertson, EM-LA
Cristopher Hall, EM-LA
Kara Hetrick, EM-LA
Jessica Moseley, EM-LA

Name of Program: Certificate in Nuclear Waste Operator: UNM Los Alamos

	2019-2020 YEAR 1	2020-2021 YEAR 2	2021-2022 YEAR 3	2022-2023 YEAR 4	2023-2024 YEAR 5
Operating Expenses	\$550	\$550	\$550	\$550	\$550
Faculty Salaries	\$50,245.60 total for department \$0 of this amount is for NWO faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for NWO faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for NWO faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for NWO faculty. Program is partnership with N3B. N3B providing faculty.	\$50,245.60 total for department \$0 of this amount is for NWO faculty. Program is partnership with N3B. N3B providing faculty.
Staff Salary –	n/a	n/a	n/a	n/a	n/a
TPT Salaries	n/a	n/a	n/a	n/a	n/a
Total I&G Budget	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60
Changes to current allocation of funds					
External resources/funds	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.	N3B is partnering with UNM-LA to provide faculty and on-the job training for these students. Currently this program is part of an unregistered apprenticeship program. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students.
Anticipated tuition	To be determined. Current UNM –LA	To be determined. Current UNM –LA	To be determined. Current UNM –LA	To be determined. Current UNM –LA	To be determined. Current UNM –LA

**Requesting
Certificate to be
added Fall 2019.**

<p>tuition for 10 credit hours is \$875.</p>	<p>tuition for 10 credit hours is \$875.</p>	<p>tuition for 10 credit hours is \$875.</p>	<p>tuition for 10 credit hours is \$875.</p>	<p>tuition for 10 credit hours is \$875.</p>	<p>tuition for 10 credit hours is \$875.</p>
<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>	<p>N/A Course fees typically cover consumable materials for the class. At this point, no consumable materials are required.</p>

**Anticipated course fees
(with rationale)**

Form C: Certificate in Nuclear Enterprise Science and Technology

UNM Los Alamos proposes the creation of a Certificate in Nuclear Enterprise Science and Technology.

Program Description: The UNM-Los Alamos Nuclear Enterprise Science and Technology (NEST) program is an intensive thirty-two-week certificate program training technicians and technologists in fissionable material handling and glove box operation. As designed, this is a 30-credit hour program that allows students to obtain an academic credential to enter the workforce after one year of coursework and on-the-job training (OJT). The program was designed in partnership with Los Alamos National Laboratory. Program curriculum is based upon various Department of Energy (DOE) documents that address glovebox use and the handling of fissionable materials.

Catalog Description: This certificate program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities as Fissionable Material Handlers and/or Glovebox Operators. This certificate will also allow students wishing to pursue further education to ladder their credentials with additional coursework to acquire an Associate of Applied Science degree in an advanced program. The goal of the program is to provide for a technically qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities.

Certificate Requirements: This is a technician or technologist certificate, focusing upon skills needed to work within a nuclear materials handling and processing facility as a Fissionable Materials Handler and/or a Glovebox Operator with the ability to work with radioactive materials, particularly plutonium, in support of manufacturing missions in the national security interest. The courses can be completed over the course of two full-time semesters for a combined 30 credit hours.

The program requires: a minimum of 30-credit hours (20-credit hours of coursework and 10-credit hours of Laboratory on-the-job-training courses with nuclear facility experience). The laboratory experience includes approximately 256 hours (16 hrs/week for 16 weeks) of on-the-job training with local fissionable material operators and LANL nuclear material subject matter experts. The program content is based upon various Department of Energy (DOE) documents that address glovebox use and the handling of fissionable materials. Students must earn a cumulative grade point average of 2.5. Minimum grade of C (not C-) in each Technical Core course.

Pre-requisite

Satisfactory score on placement tests for writing, reading, and mathematics or completion of ENGL 1110X and Math 012 with a grade of CR.

Instructor permission

Specific Degree Requirements:*Nuclear Facility Work (15 credits)*

NFFW 1110: Nuclear Facility Fundamentals (5 Credit Hours)

NFFW 1120: Fissionable Material Handler (5 Credit Hours)

NFFW 1120L: Nuclear Facility Lab (5)

Actinide Science Fundamentals (15 credits)

ASFD 1110: Introduction to Actinide Science (5 Credit Hours)

ASFD 1120: Nuclear Materials Process Techniques (5 Credit Hours)

ASFD 1120L: Nuclear Materials Processing Lab (5)

Total Credit Hours 30 Credit Hours

Program Learning Goals: The Nuclear Enterprise Science and Technology program provides students with quality instruction in preparation for successful employment in entry-level technician and technologist positions working as a fissionable material handler and/or a glovebox operator in a nuclear materials handling and processing facility. Certificate holders may expect to find employment opportunities with the national laboratories working with radioactive nuclear materials in support of programmatic manufacturing missions that support U.S. national security.

Upon successful completion of the required courses for the NEST certificate, students will demonstrate:

- 1) Workplace skills specific to radioactive and nuclear materials handling and processing;
- 2) Knowledge of industry regulations and requirements as part of the nuclear enterprise;
- 3) Basic knowledge of processes, procedures and formality of operations required to safely and securely work with radioactive nuclear materials;
- 4) Team building and communication skills necessary to work in a multidisciplinary high-hazard environment.

Assessment: UNM Los Alamos participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules and relevancy of the program and courses to current workforce demands and transfer programs. Courses and programs are realigned, eliminated or revised to meet market demand. The first review will be conducted in the second year of the certificate to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with the Assessment coordinator to conduct academic program assessment on this program.

Long-term Planning and Budgetary Impact: Due to the apprenticeship style program, enrollment will be limited to cohorts of 30-40 students per semester. The NEST certificate will be under the Applied Sciences index at UNM-LA. The faculty members necessary to teach the

courses will be provided by Los Alamos National Laboratory. Courses will be taught in UNM-LA or Los Alamos National Laboratory classrooms, and on-the-job Laboratory experience will be fulfilled in Los Alamos National Laboratory nuclear facilities.

Justification for Adding Certificate Degree in Nuclear Enterprise Science and Technology (NEST) University of New Mexico – Los Alamos Campus

Executive Summary

The proposed certificate program in Nuclear Enterprise Science and Technology (NEST) is developed to enhance the training and education of technicians, technologists and other technical staff in the handling of special nuclear materials, specifically plutonium, within the physical and regulatory envelope required to safely and securely perform manufacturing as well as research and development activities in DOE nuclear facilities. The program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities as Fissile Material Handlers and/or Glovebox Operators after one year (two semesters) of university level courses (30 credit hours). This certificate will also allow students wishing to pursue further education to ladder their credentials with additional coursework to acquire an Associates of Applied Science degree in Nuclear Enterprise Science and Technology or related field. The 30 credit hours in this certificate program are embedded in the 60 credit hour AAS degree. A flow chart prepared by Los Alamos National Laboratory is attached at the end of this document to illustrate how the certificate is embedded into the Associate degree.

The goal of the program is to provide for a technically qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities.

Program Description

The proposed program will serve the needs of both students interested in pursuing a career working with radioactive nuclear materials and of nearby employers by providing a pool of candidates who have demonstrated the skills necessary to qualify as fissile material handlers and/or glovebox operators within operating nuclear materials handling and processing facilities. Thus, this program will simultaneously benefit both the local communities and regional employers at the U.S. national laboratories. This program aligns well with UNM-Los Alamos' mission to provide for career options using "innovative, rigorous, and affordable education opportunities to build essential foundations for transfer, leading-edge career programs, and life-long learning opportunities."

This certificate program can serve as an introduction to the field of nuclear materials handling and processing while also providing a stepping stone on the path to a further education leading to an Associates or Bachelor's degree. This certificate will provide an opportunity for the student to obtain an academic credential after only a nominal one year of college level coursework and allow them to enter the workforce in a relatively rapid time frame. This program aligns with UNM-Los Alamos' strategic plan by helping facilitate progress toward educational objectives (student excellence), and developing a program to aid in workforce development and availability (community excellence). This program also has goals which align with UNM's broader mission to provide students with "knowledge and skills that they need to be enlightened citizens, to contribute to the state and national economies, and to lead satisfying lives."

The proposed program has been developed with two major objectives. It provides the student with the skills needed to relatively quickly establish the qualifications needed to work as a Fissile

Material Handler or a Glovebox Operator within a nuclear materials handling and processing facility. It also provides a mechanism to consistently and effectively transfer captured knowledge about the nuclear enterprise to a new cadre of potential workers.

Catalog Description

This certificate program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities as Fissile Material Handlers and/or Glovebox Operators. This certificate will also allow students wishing to pursue further education to ladder their credentials with additional coursework to acquire an Associates of Applied Science degree in an advanced program. The goal of the program is to provide for a technically qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities.

Program Content

This Certificate will serve to concurrently qualify the successful candidate for work within a nuclear materials handling and processing facility as a fissile materials handler and/or a glovebox operator with the ability to work with radioactive materials, particularly plutonium, in support of manufacturing missions in the national security interest. The courses can be completed over the course of two full-time semesters for a combined 30 credit hours.

The program content, in part, is based on DOE training requirements, and will also incorporate teaching students to work to Los Alamos National Laboratory requirements. Courses include a host of nuclear enterprise specific capabilities established to allow for performing safe and secure work in national laboratory facilities.

Pre-requisite

Satisfactory score on placement tests for writing, reading, and mathematics or completion of ENGL 1110X and Math 012 with a grade of 'CR

Instructor permission

Nuclear Facility Work (15 credits)

NFFW 1110: Nuclear Facility Fundamentals (5)

NFFW 1120: Fissionable Material Handler (5)

NFFW 1120L: Nuclear Facility Lab (5)

Actinide Science Fundamentals (15 credits)

ASFD 1110: Introduction to Actinide Science (5)

ASFD 1120: Nuclear Materials Process Techniques (5)

ASFD 1120L: Nuclear Materials Processing Lab (5)

Program Learning Goals

The NEST program provides students with quality instruction in preparation for successful employment in entry level technician and technologist positions working as a fissile material handler and/or a glovebox operator in a nuclear materials handling and processing facility. Certificate holders may expect to find employment opportunities with the national laboratories

working with radioactive nuclear materials in support of programmatic manufacturing missions that support U.S. national security.

Upon successful completion of the required courses for the NEST certificate, students will demonstrate:

- 1) Workplace skills specific to radioactive and nuclear materials handling and processing
- 2) Knowledge of industry regulations and requirements as part of the nuclear enterprise
- 3) Basic knowledge of processes, procedures and formality of operations required to safely and securely work with nuclear materials
- 4) Team building and communication skills necessary to work in a multidisciplinary high-hazard environment

Evidence of Need

Regional and local demand for nuclear process operators is currently growing as missions, and increased staffing to support them, are increasing in both number and scope at the national laboratories. The regional demand for nuclear facility workers is growing. Over the next five years, Los Alamos National Laboratory anticipates hiring over 800 employees into nuclear process operator positions working in their nuclear facilities. The starting median salaries for entry-level technicians at Los Alamos is \$42,000 per year. A letter of support from Los Alamos National Laboratory is attached to this submission.

Other Related Programs

The NEST program is the first of its kind anywhere in the nation and will potentially serve as a template for similar programs at other nuclear sites around the country.

Institutional Readiness

UNM-Los Alamos is uniquely located in close proximity to the Los Alamos National Laboratory (LANL). UNM and LANL entered into a formal Joint Faculty Appointment Agreement (IA-181) to allow LANL staff to have faculty appointments and teach accredited courses through the university, including UNM-LA. Classes may be offered throughout the day and into the evening to accommodate workforce demands. The number of courses and sessions offered can be adapted to support student needs as well as collaborative positions provided at the national laboratories in support of mission work.

Facilities and Required Resources

Course content may be delivered on the UNM-Los Alamos campus, at Los Alamos facilities, or via synchronous or asynchronous distance learning at both institutions. The core technical courses in support of the fissile material handler and/or glovebox operator qualifications will be taught by LANL adjunct or joint appointment faculty at a combination of UNM-LA (classroom) and LANL (nuclear laboratory) facilities. LANL authorized adjunct faculty will be available to teach the necessary technical courses.

Evaluation and Assessment

UNM-Los Alamos participates in course assessment, program assessment and program reviews. This certificate program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM-Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include a financial review, an examination of courses, faculty credentials, course rotations schedules and relevancy of the program, and courses to current workforce demands as well as relevant transfer or bridging programs. Courses and programs are realigned, eliminated or revised to meet market demand. Instructors and content owners of the above listed courses will be asked to complete annual course assessments of their learning objectives. An annual academic program assessment will be conducted to identify opportunities for improvement in the program.

Required Resources

Few additional resources will be required by UNM-Los Alamos, but a significant commitment will be made by LANL to assure the success of this program. LANL has distance learning classrooms at the National Security Education Center (NSEC), and the White Rock Training Center. LANL has training glove boxes at the LANL TA-55 training center, and working nuclear gloveboxes and other nuclear infrastructure at its TA-55 nuclear facilities for hosting the Laboratory OJT portion of the program.

Projected Enrollment and Costs

LANL anticipates enrolling students in cohorts of 30 students two times per year.

No significant additional costs are anticipated to be incurred by UNM- Los Alamos for this program.

Nuclear Enterprise Science & Technology
Associate of Applied Science Degree (60 cr)

General Ed & Technical Electives (22)	Technical Core (18)
Communications (3)	NFFW 1110: Nucl Facility Fundamentals (5)
Mathematics (3)	ASFD 1110: Intro to Actinide Sci (5)
Social & Behavioral Sci (3)	CHEM 1215: General Chem I (3)
Humanities (3)	CHEM 1225L: General Chem II Lab (1)
Additional Gen (3)	PHYS 1115: Survey of Physics (3)
Electives (7)	PHYS 1115L: Survey of Phys Lab (1)

Nucl Material Handler Technician Concentration (LANL)

 **Nucl Material Handler Technician (20)**

NFFW 1120: Fissionable Mater. Handler (5)
 NFFW 1120L: Fissionable Mater. Handler Lab (5)
 ASFD 1120: Nucl Mater. Process Techniques (5)
 ASFD 1120L: Nucl Mater. Process Lab (5)

Haz Matl Mngt & Waste Technol Technician Concentration (N3B)

 **Hazardous Matl Mngt & Waste Technol Technician (20)**

RCTB 1110: Rad Control Tech (9)
 RCTB 1110L: Rad Control Tech Lab (1)
OR
 NWOB 1110: Nucl Waste Operator (9)
 NWOB 1110L: Nucl Waste Operator Lab (1)

-  = **NEST Certificate (30 cr)**
-  = **N3B Certificate (10 cr)**
-  = **UNM Courses (30-50 cr)**

BIOL 1140: Biol for Health Sciences (3) 

BIOL 1140L: Biology for Sciences Lab (1)

GEOL 1120: Environmental Geology. (3)

GEOL 1120L: Environmental Geology Lab (1)

BSTC 113: Intro to Project Management. (1)

BSTC 118: Conflict Resolution for Workplace (1)

Name of Program: Certificate in Nuclear Enterprise Science and Technology: UNM- Los Alamos

	2019-2020 YEAR 1	2020-2021 YEAR 2	2021-2022 YEAR 3	2022-2023 YEAR 4	2023-2024 YEAR 5
Operating Expenses	\$550	\$550	\$550	\$550	\$550
Faculty Salaries	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL, LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL, LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL, LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL, LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL, LANL providing faculty.
Staff Salary –	n/a	n/a	n/a	n/a	n/a
TPT Salaries	n/a	n/a	n/a	n/a	n/a
Total I&G Budget	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60
Changes to current allocation of funds					
External resources/funds	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for

Requesting Associate of Applied Science to be added Spring 2020.

	program, plus tuition reimbursement for employees continuing beyond the certificate program to the associate degree.	reimbursement for employees continuing beyond the certificate program to the associate degree.	employees continuing beyond the certificate program to the associate degree.	employees continuing beyond the certificate program to the associate degree.
	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.
Anticipated tuition	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.
Anticipated course fees (with rationale)	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.

Form C: Associate of Applied Science in Nuclear Enterprise Science and Technology

UNM Los Alamos is proposing the creation of an Associate of Applied Science (AAS) degree in Nuclear Enterprise Science and Technology.

Program Description: The UNM-Los Alamos Nuclear Enterprise Science and Technology (NEST) program is a two-year Associate of Applied Science (AAS) degree for technicians and technologists in nuclear science materials and handling. The 60-credit hour program was designed in partnership with Los Alamos National Laboratory (LANL) and Newport News Nuclear BWX Technologies (N3B). Program curriculum is based upon various Department of Energy (DOE) documents that address glovebox use and the handling of fissionable materials and waste operator qualification, and DOE Radiation Control Technician requirements. This program provides training and formal education for those entering the nuclear technician fields. The degree has concentrations in Nuclear Materials Handling Technology or Hazardous Materials Management and Waste Technology. Students select a concentration based upon current employment, previous coursework, and work experience. Participants in the program must be able to obtain a security clearance through DOE and have instructor permission to enroll in the technical courses.

Catalog Description: The AAS in Nuclear Enterprise Science and Technology program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities, in positions such as Fissionable Material Handlers, Glovebox Operators, and Materials Management Technicians. This degree will also allow students wishing to pursue further education to ladder their credentials with additional coursework to acquire a Bachelor's Degree in Engineering Technology or related field. The goal of the program is to provide for a technically qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities, and to expand participants' reasoning skills, communication skills and critical thinking skills to not just understand what to do on the job, but to understand the chemical, physical and biological implications of action and inaction related to their job duties. The degree has concentrations in both Nuclear Materials Handling Technology and Hazardous Materials Management and Waste Technology. Students select a concentration based upon current employment, previous coursework, and work experience. Participants in the program must be able to obtain a security clearance through the Department Of Energy and have instructor permission to enroll in the technical courses.

Degree Requirements: The program requires a minimum of 60-credit hours with a combination of General Education requirements, technical coursework and laboratory experiences of on-the-job training (OJT) with subject matter experts from Los Alamos National Laboratory and N3B. Technical program curriculum is based upon various Department of Energy (DOE) documents that address glovebox use and the handling of fissionable materials and waste operator qualification, and DOE Radiation Control Technician requirements. Additional course work includes physics, chemistry and biology courses. Students completing the program are prepared to take the DOE certification exams and will be prepared to work in nuclear facilities throughout New Mexico.

The program includes courses taken in one of three certificate programs, the Radiation Control Technician Bootcamp, the Nuclear Waste Operators Bootcamp, or the Nuclear Enterprise Science Technician certificate program. Pre-requisites for the certificate programs include a satisfactory score on placement tests for writing, reading, and mathematics or completion of ENGL 1110X and Math 012 with a grade of 'CR', and instructor permission. Participants in the program must be able to obtain a security clearance through DOE.

The Associate of Applied Science in Nuclear Enterprise Science and Technology has concentrations in Nuclear Materials Handling Technology or Hazardous Materials Management and Waste Technology. This program expands upon the skills developed in the certificate programs and adds additional education for participants including general education and courses related to the field in areas such as physics, chemistry, biology and environmental science. By pursuing the associate degree beyond the certificate programs, student expand their reasoning skills, their communication skills and their critical thinking skills to not just understand what to on the job but to understand why they are doing it and the chemical, physical and biological implications of action and inaction related to their job duties.

Program Requirements

General Education Requirements

15 Credit Hours

Communications (3 Credit Hours)

Select three credit hours from UNM Core Curriculum courses in this area.

Mathematics (3 Credit Hours)

Select three credit hours from UNM Core Curriculum courses in this area.

Social and Behavioral Sciences (3 Credit Hours)

Select three credit hours from UNM Core Curriculum courses in this area.

Humanities or Creative and Fine Arts (3 Credit Hours)

Select three hours from UNM Core Curriculum courses in this area.

Additional General Education Credit Hours (3 Credit Hours)

Students should select an additional three credit hours from the UNM General Education Core Curriculum. The additional three hours are distributed by student choice in any area above.

Total General Education Requirements

15 Credit Hours

Technical Core Requirements

Technical Core Courses Common to Both Concentrations

18 Credit Hours

NFFW 1110: Nuclear Facility Fundamentals (5)*

ASFD 1110: Introduction to Actinide Science (5)*

CHEM 1215: General Chemistry I for STEM Majors. (3)

CHEM 1225L: General Chemistry II for STEM Majors Laboratory. (1)

PHYS 1115: Survey of Physics. (3)

PHYS 1115L: Survey of Physics Laboratory. (1)

Total Technical Core Courses Common to Both Concentrations

18 Credit Hours

Additional Technical Courses by Concentration

20 Credit Hours

**HAZARDOUS MATERIALS MANAGEMENT AND WASTE TECHNOLOGY
TECHNICIAN CONCENTRATION**

20 CREDIT HOURS

BIOL 1140: Biology for Health Sciences. (3)
BIOL 1140L: Biology for Sciences Laboratory. (1)
GEOL 1120: Environmental Geology. (3)
GEOL 1120L: Environmental Geology Laboratory. (1)
BSTC 113: Introduction to Project Management. (1)
BSTC 118: Conflict Resolution for the Workplace. (1)

**Additional 10 credit hours from either Radiation Control Technology or Nuclear Waste
Operation Technology**

RCTB 1110: Radiation Control Technician (9)*
And RCTB 1110 L Radiation Control Technician Laboratory (1)*

OR

NWOB 1110: Nuclear Waste Operator (9)*
And NWOB 1110L: Nuclear Waste Operator Laboratory (1) *

**Total Technical Credit Hours Hazardous Materials Management and Waste Technology
Technician Concentration**

20 Credit Hours

NUCLEAR MATERIALS HANDLER TECHNICIAN CONCENTRATION

20 CREDIT HOURS

NFFW 1120: Fissionable Material Handler (5)*
NFFW 1120L: Nuclear Facility Lab (5)*
ASFD 1120: Nuclear Materials Process Techniques (5)*
ASFD 1120L: Nuclear Materials Processing Lab (5)*

Total Nuclear Materials Handler Technician Concentration

20 Credit Hours

ELECTIVES

TECHNICAL ELECTIVES FOR BOTH CONCENTRATIONS (7 credit hours)

Please consult with your concentration advisor to determine which courses are most appropriate.

SELECT 7 CREDIT HOURS NOT PREVIOUSLY APPLIED TO THE DEGREE.

FYEX 1110 (Seminar: On Course), BIOL 2110 (Principles of Biology: Cellular and Molecular Lecture and Laboratory), BIOL 2110L (Principles of Biology: Cellular and Molecular Lecture and Laboratory), BSTC 113 (Introduction to Project Management), BSTC 114 (Customer Service

and Relations), *BSTC 115* (Time Management), *BSTC 116* (Stress Management for the Workplace), *BSTC 117* (Organization Skills for the Workplace), *BSTC 118* (Conflict Resolution for the Workplace), *BSTC 218* (Business Law), *CHEM 1225* (General Chemistry II for STEM Majors), *CHEM 1225L* (General Chemistry II for STEM Majors Lab), *COMM 1130* (Public Speaking), *CT 102* (Introduction to Microcomputers on the PC), *CT 111* (Introduction to Computer Aided Design and Drafting), *DRFT 103* (Introduction to Drafting), *ELCT 101L* (DC Circuit Analysis), *ELCT 102L* (AC Circuit Analysis), *ELCT 137* (Digital Electronics I (Combinational Logic)), *ELCT 162* (Robotics), *ELCT 163* (Advanced Robotics), *ENG 116* (Introduction to Engineering), *MGMT 158* (Ethics in Organizations), *PBST 102* (Principles of Emergency Management), *PBST 109* (Public Safety Interview and Report Writing), *PHYS 1115* (Survey of Physics), *PHYS 1115L* (Survey of Physics Laboratory), *PHYS 1230* (Algebra-based Physics I), *PHYS 1230L* (Algebra-based Physics I Lab), *PSYC 2120* (Developmental Psychology).

TOTAL ELECTIVES

7 CREDIT HOURS

TOTAL CREDIT HOURS

60 CREDIT HOURS

*INSTRUCTOR PERMISSION REQUIRED FOR ENTRY INTO THESE COURSES.

Program Learning Goals: The Nuclear Enterprise Science and Technology program provides students with quality instruction in preparation for successful employment in entry level technician and technologist positions working as a fissile material handlers, glovebox operators, and hazardous materials handlers in a nuclear materials handling and processing facility. Associate degree holders may expect to find employment opportunities with the national laboratories working with radioactive nuclear materials in support of programmatic manufacturing missions that support U.S. national security and other Department of Energy facilities and sub-contractors.

Upon successful completion of the required courses for the NEST degree, students will demonstrate:

- 1) Workplace skills specific to radioactive and nuclear materials handling and processing
- 2) Knowledge of industry regulations and requirements as part of the nuclear enterprise
- 3) Basic knowledge of processes, procedures and formality of operations required to safely and securely work with radioactive nuclear materials
- 4) Team building and communication skills necessary to work in a multidisciplinary high-hazard environment
- 5) Understand the chemical, physical, and biological implications of working with nuclear materials and appropriate use of the materials.

Assessment: UNM Los Alamos participates in course assessment, program assessment and program reviews. This AAS program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include financial review, examination of courses, faculty credentials, course rotation schedules and relevancy of the program and courses to current

workforce demands and transfer programs. Courses and programs are realigned, eliminated or revised to meet market demand. We will conduct the first review in the second year of the degree program to make initial determinations on the effectiveness of the program. Additionally, instructors in the above listed courses are asked to complete annual course assessment of their learning objectives. We will work with our Assessment coordinator, Dr. Reuben Sanchez, to conduct academic program assessment on this program.

Long-term Planning and Budgetary Impact: Due to the apprenticeship style of the certificate programs that form the foundation for the AAS degree, program enrollment will be limited to cohorts of 30-40 students per semester. The NEST Degree will be under the Applied Sciences index at UNM-LA. The faculty members necessary to teach the courses will be provided by Los Alamos National Laboratory and N3B. Courses will be taught in UNM-LA, Los Alamos National Laboratory classrooms, N3B facilities, and include on-the-job Laboratory experience at either Los Alamos National Laboratory nuclear facilities or N3B facilities and field assignments.

Justification for Adding Associate of Applied Science Degree in Nuclear Enterprise Science and Technology (NEST) University of New Mexico – Los Alamos Campus

Executive Summary

The proposed Associate of Applied Science (AAS) degree program in Nuclear Enterprise Science and Technology (NEST) is developed to enhance the training and education of technicians, technologists and other technical staff in the handling of special nuclear materials, specifically plutonium, within the physical and regulatory envelope required to safely and securely perform manufacturing as well as research and development activities in Department Of Energy (DOE) nuclear facilities and subcontractor locations. The program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities and for subcontractors as Fissionable Material Handlers, Glovebox Operators and Materials Handlers after two years (four semesters) of university level courses (60 credit hours). The degree will also allow students holding certificates in Radiation Control Technology, Nuclear Waste Operator Technology, or Nuclear Enterprise Science Technology to pursue further education and ladder their credentials with additional coursework to acquire an Associates of Applied Science degree in this advanced program. The goal of the program is to provide for a technically-qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities, and to expand their reasoning skills, communication skills and their critical thinking skills to not just understand what to do on the job, but to understand why they are doing it, and to understand the chemical, physical and biological implications of action and inaction related to their job duties. The Associate of Applied Science in Nuclear Enterprise Science and Technology has concentrations in both Nuclear Materials Handling Technology and Hazardous Materials Management and Waste Technology. A flow chart prepared by Los Alamos National Laboratory is attached at the end of this document to illustrate the two concentrations. Students select a concentration based upon current employment, previous coursework, and work experience. Participants in the program must be able to obtain a security clearance through DOE and have instructor permission to enroll in the technical courses.

Program Description

The proposed program will serve the needs of both students interested in pursuing a career working with radioactive nuclear materials and of regional employers by providing a pool of candidates who have demonstrated the skills necessary to qualify as fissionable material handlers, glovebox operators and materials handlers within operating nuclear materials handling and processing facilities and for DOE subcontractors. A letter of support from Los Alamos National Laboratory (LANL) for the creation of this program is attached to this justification. This program will simultaneously benefit both the local communities and regional employers at the U.S. national laboratories and related facilities. This program aligns well with UNM-Los Alamos' mission to provide for career options using "innovative, rigorous, and affordable education opportunities to build essential foundations for transfer, leading-edge career programs, and life-long learning opportunities."

This AAS degree program can serve as an introduction to the field of nuclear materials handling and processing while also providing a stepping stone on the path to further education leading to a Bachelor's degree. This degree will provide an opportunity for the student to obtain

a degree after only two years of college-level coursework and allow them to enter the workforce in a relatively rapid time frame. This program aligns with UNM-Los Alamos' strategic plan by helping facilitate progress toward educational objectives (student excellence), and developing a program to aid in workforce development and availability (community excellence). This program also has goals which align with UNM's broader mission to provide students with "knowledge and skills that they need to be enlightened citizens, to contribute to the state and national economies, and to lead satisfying lives."

The proposed program has been developed with two major objectives. It provides the student with the skills needed to quickly establish the qualifications needed to work as a Fissionable Materials Handler, a Glovebox Operator or a materials handler within a nuclear materials handling and processing facility or for a Department of Energy subcontractor. It also provides a mechanism to consistently and effectively transfer captured knowledge about the nuclear enterprise to a new cadre of potential workers and helps to create an environment of personal responsibility, where technicians understand not only the tasks required to successfully complete a job assignment, but also understand the chemical, physical and biological reasons for why they are doing those tasks.

Catalog Description

The AAS in Nuclear Enterprise Science and Technology program is designed to provide students with the skills and experience to qualify for entry-level positions in nuclear facilities, in positions such as Fissionable Material Handlers, Glovebox Operators, and Materials Management Technicians. This degree will also allow students wishing to pursue further education to ladder their credentials with additional coursework to acquire a Bachelor's Degree in Engineering Technology or related field. The goal of the program is to provide for a technically-qualified workforce who can execute a variety of programmatic work in modern nuclear materials handling and processing facilities, and to expand participants' reasoning skills, communication skills and critical thinking skills to not just understand what to do on the job, but to understand the chemical, physical and biological implications of action and inaction related to their job duties. The Associate of Applied Science in Nuclear Enterprise Science and Technology has concentrations in both Nuclear Materials Handling Technology and Hazardous Materials Management and Waste Technology. Students select a concentration based upon current employment, previous coursework, and work experience. Participants in the program must be able to obtain a security clearance through the Department of Energy (DOE) and have instructor permission to enroll in the technical courses.

Program Content

This is a technician or technologist Associate of Applied Science degree, expanding upon skills needed to work within a nuclear materials handling and processing facility as a Fissionable Materials Handler, Glovebox Operator, or Hazardous Materials Handler, with the ability to work with radioactive materials, particularly plutonium, in support of manufacturing missions in the national security interest. The courses can be completed over the course of four full-time semesters for a combined 60 credit hours.

The program requires a minimum of 60-credit hours with a combination of General Education requirements, technical coursework and laboratory experiences of on-the-job training with subject matter experts from Los Alamos National Laboratory and Newport News Nuclear BWX Technologies (N3B). Technical program curriculum is based upon various Department of

Energy (DOE) documents that address glovebox use and the handling of fissionable materials and waste operator qualification, and DOE Radiation Control Technician requirements. Additional course work includes physics, chemistry and biology courses. Students completing the program are prepared to take any applicable DOE certification exams and will be prepared to work in nuclear facilities throughout New Mexico.

The program includes courses taken in one of three certificate programs, the Radiation Control Technician Bootcamp, the Nuclear Waste Operators Bootcamp, or the Nuclear Enterprise Science Technician certificate program. Pre-requisites for the certificate programs include a satisfactory score on placement tests for writing, reading, and mathematics or completion of ENGL 1110X and Math 012 with a grade of 'CR', and instructor permission. Participants in the program must be able to obtain a security clearance through DOE.

The Associate of Applied Science in Nuclear Enterprise Science and Technology has concentrations in Nuclear Materials Handling Technology or Hazardous Materials Management and Waste Technology. This program expands upon the skills developed in the certificate programs and adds additional education for participants including general education and courses related to the field in areas such as physics, chemistry, biology and environmental science. By pursuing the associate degree beyond the certificate programs, student expand their reasoning skills, their communication skills and their critical thinking skills to not just understand what to on the job but to understand why they are doing it and the chemical, physical and biological implications of action and inaction related to their job duties.

Program Requirements

General Education Requirements

15 Credit Hours

Communications (3 Credit Hours)

Select three credit hours from UNM Core Curriculum courses in this area.

Mathematics (3 Credit Hours)

Select three credit hours from UNM Core Curriculum courses in this area.

Social and Behavioral Sciences (3 Credit Hours)

Select four credit hours from UNM Core Curriculum courses in this area.

Humanities or Creative and Fine Arts (3 Credit Hours)

Select three hours from UNM Core Curriculum courses in this area.

Additional General Education Credit Hours (3 Credit Hours)

Students should select additional three credit hours from the UNM General Education Core Curriculum. The additional three hours are distributed by student choice in any area above.

Total General Education Requirements

15 Credit Hours

Technical Core Requirements

Technical Core Courses Common to Both Concentrations

18 Credit Hours

NFFW 1110: Nuclear Facility Fundamentals (5)*
ASFD 1110: Introduction to Actinide Science (5)*
CHEM 1215: General Chemistry I for STEM Majors. (3)
CHEM 1225L: General Chemistry II for STEM Majors Laboratory. (1)
PHYS 1115: Survey of Physics. (3)
PHYS 1115L: Survey of Physics Laboratory. (1)
Additional Technical Courses by Concentration **20 Credit Hours**

**HAZARDOUS MATERIALS MANAGEMENT AND WASTE TECHNOLOGY
TECHNICIAN CONCENTRATION** **20 CREDIT HOURS**

BIOL 1140: Biology for Health Sciences. (3)
BIOL 1140L: Biology for Sciences Laboratory. (1)
GEOL 1120: Environmental Geology. (3)
GEOL 1120L: Environmental Geology Laboratory. (1)
BSTC 113: Introduction to Project Management. (1)
BSTC 118: Conflict Resolution for the Workplace. (1)

**Additional 10 credit hours from either Radiation Control Technology or Nuclear Waste
Operation Technology**

RCTB 1110: Radiation Control Technician (9)*
And RCTB 1110 L Radiation Control Technician Laboratory (1)*
OR
NWOB 1110: Nuclear Waste Operator (9)*
And NWOB 1110L: Nuclear Waste Operator Laboratory (1) *

**Total Technical Credit Hours Hazardous Materials Management and Waste Technology
Technician Concentration** **20 Credit Hours**

NUCLEAR MATERIALS HANDLER TECHNICIAN CONCENTRATION **20 CREDIT HOURS**

NFFW 1120: Fissionable Material Handler (5)*
NFFW 1120L: Nuclear Facility Lab (5)*
ASFD 1120: Nuclear Materials Process Techniques (5)*
ASFD 1120L: Nuclear Materials Processing Lab (5)*
Total Nuclear Materials Handler Technician Concentration **20 Credit Hours**

ELECTIVES

TECHNICAL ELECTIVES FOR BOTH CONCENTRATIONS (7 credit hours)

Please consult with your concentration advisor to determine which courses are most appropriate.

SELECT 7 CREDIT HOURS NOT PREVIOUSLY APPLIED TO THE DEGREE.

FYEX 1110, BIOL 2110, BIOL 2110L, BSTC 113, BSTC 114, BSTC 115, BSTC 116, BSTC 117, BSTC 118, BSTC 218, CHEM 1225, CHEM 1225L, COMM 1130, CT 102, CT 111, DRFT 103, ELCT 101L, ELCT 102L, ELCT 137, ELCT 162, ELCT 163, ENG 116, MGMT 158, PBST 102, PBST 109, PHYS 1115, PHYS 1115L, PHYS 1230, PHYS 1230L, PSYC 2120.

TOTAL ELECTIVES

7 CREDIT HOURS

TOTAL CREDIT HOURS

60 CREDIT HOURS

*INSTRUCTOR PERMISSION REQUIRED FOR ENTRY INTO THESE COURSES.

Program Learning Goals

The Nuclear Enterprise Science and Technology program provides students with quality instruction in preparation for successful employment in entry-level technician and technologist positions working as a fissionable material handlers, glovebox operators, and hazardous materials handlers in a nuclear materials handling and processing facility or a DOE subcontractor. Associate degree holders may expect to find employment opportunities with the national laboratories or subcontractors working with radioactive nuclear materials in support of programmatic manufacturing missions that support U.S. national security and other Department of Energy facilities.

Upon successful completion of the required courses for the NEST degree, students will demonstrate:

- 1) Workplace skills specific to radioactive and nuclear materials handling and processing
- 2) Knowledge of industry regulations and requirements as part of the nuclear enterprise
- 3) Basic knowledge of processes, procedures and formality of operations required to safely and securely work with radioactive nuclear materials
- 4) Team building and communication skills necessary to work in a multidisciplinary high-hazard environment
- 5) Understanding of the chemical, physical, and biological implications of working with nuclear materials and appropriate use of the materials.

Evidence of Need

Regional and local demand for nuclear process operators is currently growing as missions, and increased staffing to support them, are increasing in both number and scope at the national laboratories. The regional demand for nuclear facility workers is growing. Over the next five years, Los Alamos National Laboratory anticipates hiring over 800 employees into nuclear process operator positions working in their nuclear facilities. The starting median salary for entry-level technicians at Los Alamos and N3B is around \$42,000 per year.

Other Related Programs

The NEST program is the first of its kind anywhere in the nation and will potentially serve as a template for similar programs at other nuclear sites around the country.

Institutional Readiness

UNM-Los Alamos is uniquely located in close proximity to the Los Alamos National Laboratory (LANL) and N3B facilities. UNM and LANL entered into a formal Joint Faculty Appointment Agreement (IA-181) to allow LANL staff to have faculty appointments and teach accredited courses through the university, including UNM-LA. Similarly, N3B staff also have faculty appointments via Letters of Academic Title. All faculty credentials are verified by the Dean of Instruction at UNM-Los Alamos. Classes may be offered throughout the day and into the evening to accommodate workforce demands. The number of courses and sessions offered can be adapted to support student needs as well as collaborative positions provided at the national laboratories in support of mission work.

Facilities and Required Resources

Course content may be delivered on the UNM-Los Alamos campus, at Los Alamos National Lab facilities, N3B facilities or via synchronous or asynchronous distance learning at both institutions. The core technical courses in support of the fissionable material handler and/or glovebox operator qualifications will be taught by LANL adjunct or joint appointment faculty at a combination of UNM-LA (classroom) and LANL (nuclear laboratory) facilities. LANL authorized adjunct faculty will be available to teach the necessary technical courses. The Radiation control and waste operator classes are taught by authorized faculty from N3B organization who are either adjunct faculty at UNM-LA or who hold a Letter of Academic title.

Evaluation and Assessment

UNM-Los Alamos participates in course assessment, program assessment and program reviews. This AAS program will be subject to course assessments, program assessment and academic program review, along with all other programs at UNM-Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include a financial review, an examination of courses, faculty credentials, course rotations schedules and relevancy of the program, and courses to current workforce demands as well as relevant transfer or bridging programs. Courses and programs are realigned, eliminated or revised to meet market demand. Instructors and content owners of the above listed courses will be asked to complete annual course assessments of their learning objectives. An annual academic program assessment will be conducted to identify opportunities for improvement in the program.

Required Resources

Few additional resources will be required by UNM-Los Alamos, but a significant commitment will be made by LANL to assure the success of this program. LANL has distance learning classrooms at the National Security Education Center (NSEC), and the White Rock Training Center. LANL has training glove boxes at the LANL TA-55 training center, and working nuclear gloveboxes and other nuclear infrastructure at its TA-55 nuclear facilities for hosting the Laboratory OJT portion of the program. N3B conducts field training and offers on the job training at both their Los Alamos offices and at various field assignments throughout the region.

Projected Enrollment and Costs

LANL anticipates enrolling students in cohorts of 30 students two times per year. N3B anticipates enrolling cohorts of 10 to 20 students two times per year. No significant additional

costs are anticipated to be incurred by UNM- Los Alamos for this program. No class fees are anticipated at this time.

Nuclear Enterprise Science & Technology Associate of Applied Science Degree (60 cr)

<p>General Ed & Technical Electives (22) Communications (3) Mathematics (3) Social & Behavioral Sci (3) Humanities (3) Additional Gen (3) Electives (7)</p>	<p>Technical Core (18) </p> <p>NFFW 1110 Nucl Facility Fundamentals (5) ASFD 1110 Intro to Actinide Sci (5) CHEM 1215 General Chem I (3) CHEM 1225L General Chem II Lab (1) PHYS 1115 Survey of Physics (3) PHYS 1115L Survey of Phys Lab (1)</p>
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Nucl Material Handler Technician Concentration (LANL)

Nucl Material Handler Technician (20)

NFFW 1120: Fissionable Mater. Handler (5)
 NFFW 1120L: Fissionable Mater. Handler Lab (5)
 ASFD 1120: Nucl Mater.Process Techniques (5)
 ASFD 1120L: Nucl Mater. Process Lab (5)

Haz Matl Mngt & Waste Technol Technician Concentration (N3B)

Hazardous Matl Mngt & Waste Technol Technician (20)

RCTB 1110: Rad Control Tech (9)*
 RCTB 1110 L Rad Control Tech Lab (1)*
OR
 NWOB 1110: Nucl Waste Operator (9)
 NWOB 1110 L: Nucl Waste Operator Lab (1)

- = **NEST Certificate (30 cr)**
- = **N3B Certificate (10 cr)**
- = **UNM Courses (30-50 cr)**

BIOL 1140: Biol for Health Sciences (3)
 BIOL 1140L: Biology for Sciences Lab (1)
 GEOL 1120: Environmental Geology. (3)
 GEOL 1120L: Environmental Geology Lab (1)
 BSTC 113: Intro to Project Management. (1)
 BSTC 118: Conflict Resolution for Workplace (1)

	2019-2020 YEAR 1	2020-2021 YEAR 2	2021-2022 YEAR 3	2022-2023 YEAR 4	2023-2024 YEAR 5
Operating Expenses	\$550	\$550	\$550	\$550	\$550
Faculty Salaries	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.
Staff Salary –	n/a	n/a	n/a	n/a	n/a
TPT Salaries	n/a	n/a	n/a	n/a	n/a
Total I&G Budget	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60
Changes to current allocation of funds					
External resources/funds	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this program, plus tuition reimbursement for

Requesting Associate of Applied Science to be added Spring 2020.

	program, plus tuition reimbursement for employees continuing beyond the certificate the associate degree.	reimbursement for employees continuing beyond the certificate program to the associate degree.	employees continuing beyond the certificate program to the associate degree.	employees continuing beyond the certificate program to the associate degree.
	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.	To be determined. Current UNM -LA tuition for 60 credit hours is \$1,048 per semester for four semesters, assuming full time enrollment at 15 credit hours per semester for a total of \$4,192 in tuition and fees at current rates.
Anticipated tuition	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.
Anticipated course fees (with rationale)	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.	N/A Course fees typically cover consumable materials for classes. At this point, no consumable materials are required.

programs at UNM-Los Alamos. These program reviews are conducted on a rotating 5-year basis. The in-depth reviews include the annual program assessments but also include a financial review, an examination of courses, faculty credentials, course rotations schedules and relevancy of the program, and courses to current workforce demands as well as relevant transfer or bridging programs. Courses and programs are realigned, eliminated or revised to meet market demand. Instructors and content owners of the above listed courses will be asked to complete annual course assessments of their learning objectives. An annual academic program assessment will be conducted to identify opportunities for improvement in the program. We will work with our Assessment coordinator, Dr. Reuben Sanchez, to conduct academic program assessment on this program annually.

D. Need.

The proposed program must meet one or more specified needs within the state or region. Clear and convincing evidence must be provided of the reality and extent of such need. Max 500 words.

Evidence of need might include results of employer surveys, current labor market analyses and projections, or long-term need projections prepared by a relevant professional organization.

Regional and local demand for nuclear process operators is currently growing as missions, and increased staffing to support them, are increasing in both number and scope at the national laboratories. The regional demand for nuclear facility workers is growing. Over the next five years, Los Alamos National Laboratory anticipates hiring over 800 employees into nuclear process operator positions working in their nuclear facilities. N3B anticipates hiring dozens of these qualified individuals over the same time period. The starting median salaries for entry-level technicians at Los Alamos and N3B is around \$42,000 per year. A letter of support from Los Alamos National Laboratory is attached to this document.

If the program fills a regional workforce need, describe collaboration between your institution and regional employers in program development. Max 500 words.

See above discussion.

Regional and local demand for nuclear process operators is currently growing as missions, and increased staffing to support them, are increasing in both number and scope at the national laboratories. The regional demand for nuclear facility workers is growing. Over the next five years, Los Alamos National Laboratory anticipates hiring over 800 employees into nuclear process operator positions working in their nuclear facilities. N3B anticipates hiring dozens of these qualified individuals over the same time period. The starting median salaries for entry-level technicians at Los Alamos and N3B is around \$42,000 per year.

E. Duplication.

Identify where similar degree programs are offered by other public higher education institutions in New Mexico in the box below. Max 500 words.

The NEST program is the first of its kind anywhere in the nation and will potentially serve as a template for similar programs at other nuclear sites around the country.

If similar programs are offered at other public higher education institutions in New Mexico, provide a rationale for offering an additional program in the box below. Max 500 words.

Program is not offered at other institutions in New Mexico.

F. Enrollment and Graduation Projections. Establish realistic enrollment, retention, and graduation targets for this program.

	Year 1	Year 2	Year 3	Year 4	Year 5
New Students	40	40	40	40	40
Continuing Students					

Graduates	n/a	30	33	36	40
Annual Retention Rate Target (%)	Target 100% Graduation Rate (%)		Target Job Placement Rate (%)		
75%	75%		90%		

G. Institutional Readiness.

Describe the faculty resources that are needed to initiate the program. Will any additional faculty be needed? Max 500 words.

UNM-Los Alamos is uniquely located in close proximity to the Los Alamos National Laboratory (LANL) and N3B facilities. UNM and LANL entered into a formal Joint Faculty Appointment Agreement (IA-181) to allow LANL staff to have faculty appointments and teach accredited courses through the university, including UNM-LA. Similarly, N3B staff also have faculty appointments via Letters of Academic Title. All faculty credentials are verified by the Dean of Instruction at UNM-Los Alamos. Classes may be offered throughout the day and into the evening to accommodate workforce demands. The number of courses and sessions offered can be adapted to support student needs as well as collaborative positions provided at the national laboratories in support of mission work.

Describe the academic support resources that are needed to initiate the program. What, if any, additional resources will be needed? Max 500 words.

UNM LA has an Applied Technologies department, with two half-time continuing faculty positions. Additional faculty will be adjunct faculty or faculty appointed either through the Joint appointment process or through Letters of Academic Title. We do not anticipate additional academic support resources.

Describe the physical facilities of the institution that will be used for the first five years of the program. Will additional space or modifications of existing space be required within the first five years of program operation? Max 500 words.

Course content may be delivered on the UNM-Los Alamos campus, at Los Alamos National Lab facilities, N3B facilities or via synchronous or asynchronous distance learning at both institutions. The core technical courses in support of the fissile material handler and/or glovebox operator qualifications will be taught by LANL adjunct or joint appointment faculty at a combination of UNM-LA (classroom) and LANL (nuclear laboratory) facilities. LANL authorized adjunct faculty will be available to teach the necessary technical courses. The Radiation control and waste operator classes are taught by authorized faculty from N3B organization who are either adjunct faculty at UNM-LA or who hold a Letter of Academic title.

Describe the institution's equipment and technological resources needed for the first five years of the program? What, if any, additional equipment will be needed? Max 500 words.

No additional equipment will be needed. Lab and field work are conducted off site at either Los Alamos National Laboratory facilities, N3B facilities or in the actual field.

Describe any other operating resources needed to initiate the program. Max 500 words.

No other resources are needed for this program.

Are there existing external facilities that will be used? Have agreements been established to ensure use of those facilities? For example, if you are offering a nursing or allied health program have you established a partnership with local hospital(s) and other clinical settings? Max 500 words.

N3B and Los Alamos National Laboratory will offer on the job training/laboratory classes at their facilities for students in the lab courses.

H. Projected Budget.

Provide a clear analysis of the projected cost of the proposed program and the sources of funding that will support it for the first five years that the program will be offered. Include a discussion how any of the needed

resources discussed in **Section G** will be addressed. **Section H** should be completed in collaboration with your institution's financial office.

We do not anticipate significant changes to the budget. Additional adjunct faculty will be hired to help with the increased teaching load if necessary. UNM Los Alamos anticipates funding from Los Alamos National Laboratory to support this program.

Requesting AAS Degree to be added Spring 2020.

	2019-2020 YEAR 1	2020-2021 YEAR 2	2021-2022 YEAR 3	2022-2023 YEAR 4	2023-2024 YEAR 5	2023-2024 YEAR 6
Operating Expenses	\$550	\$550	\$550	\$550	\$550	\$550
Faculty Salaries	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.	\$50,245.60 total for department \$0 of this amount is for NEST faculty. Program is partnership with LANL. LANL providing faculty.
Staff Salary –	n/a	n/a	n/a	n/a	n/a	n/a
TPT Salaries	n/a	n/a	n/a	n/a	n/a	n/a
Total I&G Budget	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60	\$50,245.60
Changes to current allocation of funds						
External resources/funds	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to	Los Alamos National Lab (LANL) and N3B are partnering with UNM-LA to provide faculty and on-the job training for these students. We anticipate funding from the State of New Mexico Workforce Solutions and through the WIOA program to help cover the cost of the program for students. UNM-LA is currently negotiating with LANL for additional funding. LANL has tentatively discussed between \$125,000 and \$150,000 in external funds to support this

Nuclear Enterprise Science & Technology

Associate of Applied Science Degree (60 cr)

<p>General Ed & Technical Electives (22)</p> <p>Communications (3)</p> <p>Mathematics (3)</p> <p>Social & Behavioral Sci (3)</p> <p>Humanities (3)</p> <p>Additional Gen (3)</p> <p>Electives (7)</p>	<p>Technical Core (18)</p> <p>NFFW 1110: Nucl Facility Fundamentals (5) </p> <p>ASFD 1110: Intro to Actinide Sci (5)</p> <p>CHEM 1215: General Chem I (3) </p> <p>CHEM 1225L: General Chem II Lab (1)</p> <p>PHYS 1115: Survey of Physics (3)</p> <p>PHYS 1115L: Survey of Phys Lab (1)</p>
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Nucl Material Handler Technician Concentration (LANL)

Haz Matl Mngt & Waste Technol Technician Concentration (N3B)

Nucl Material Handler Technician (20)

NFFW 1120: Fissionable Mater. Handler (5)

NFFW 1120L: Fissionable Mater. Handler Lab (5)

ASFD 1120: Nucl Mater. Process Techniques (5)

ASFD 1120L: Nucl Mater. Process Lab (5)

Hazardous Matl Mngt & Waste Technol Technician (20)

RCTB 1110: Rad Control Tech (9)

RCTB 1110L: Rad Control Tech Lab (1)

OR

NWOB 1110: Nucl Waste Operator (9)

NWOB 1110L: Nucl Waste Operator Lab (1)

- = **NEST Certificate (30 cr)**
- = **N3B Certificate (10 cr)**
- = **UNM Courses (30-50 cr)**

BIOL 1140: Biol for Health Sciences (3)

BIOL 1140L: Biology for Sciences Lab (1)

GEOL 1120: Environmental Geology. (3)

GEOL 1120L: Environmental Geology Lab (1)

BSTC 113: Intro to Project Management. (1)

BSTC 118: Conflict Resolution for Workplace (1)

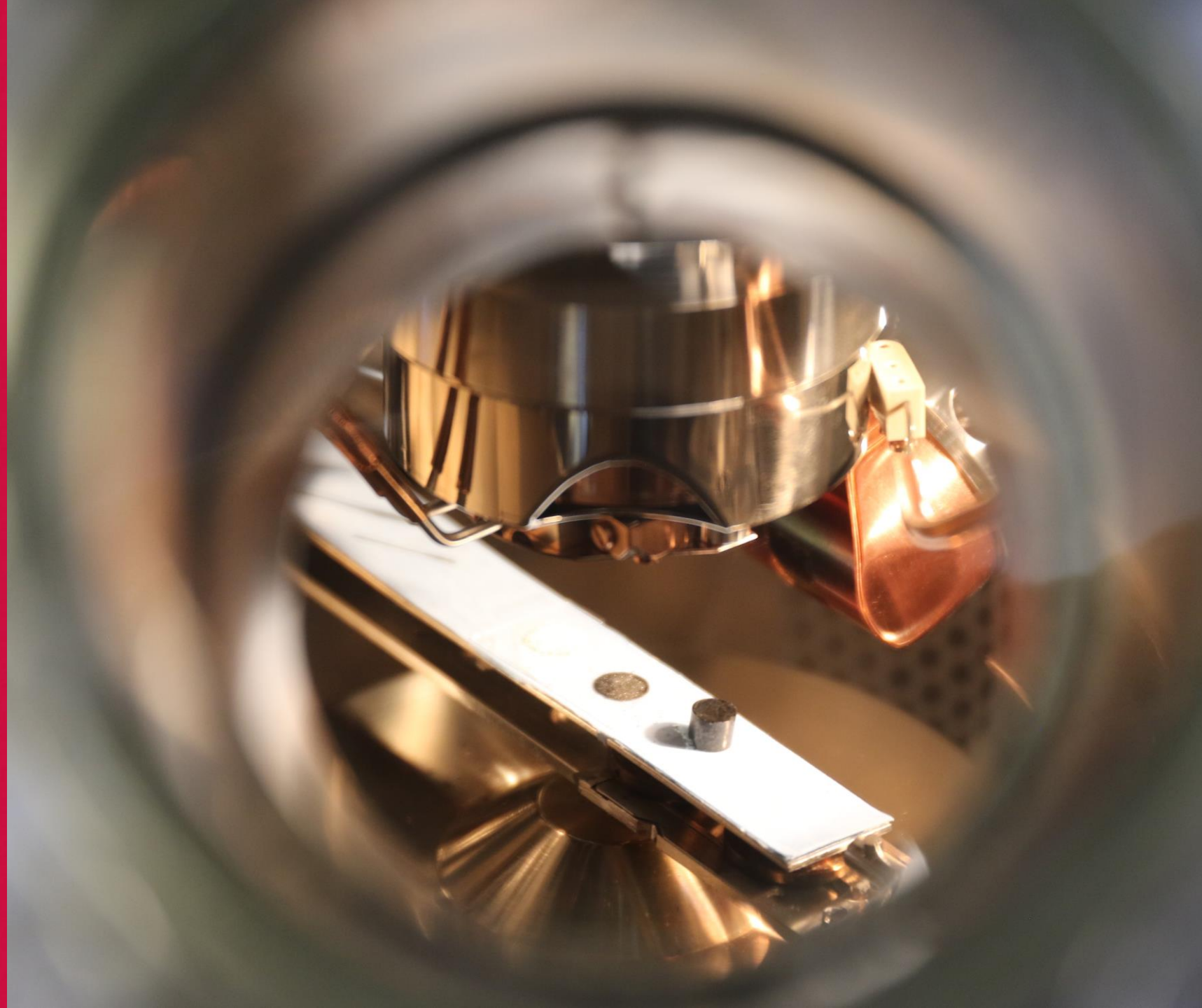
STATE OF



RESEARCH

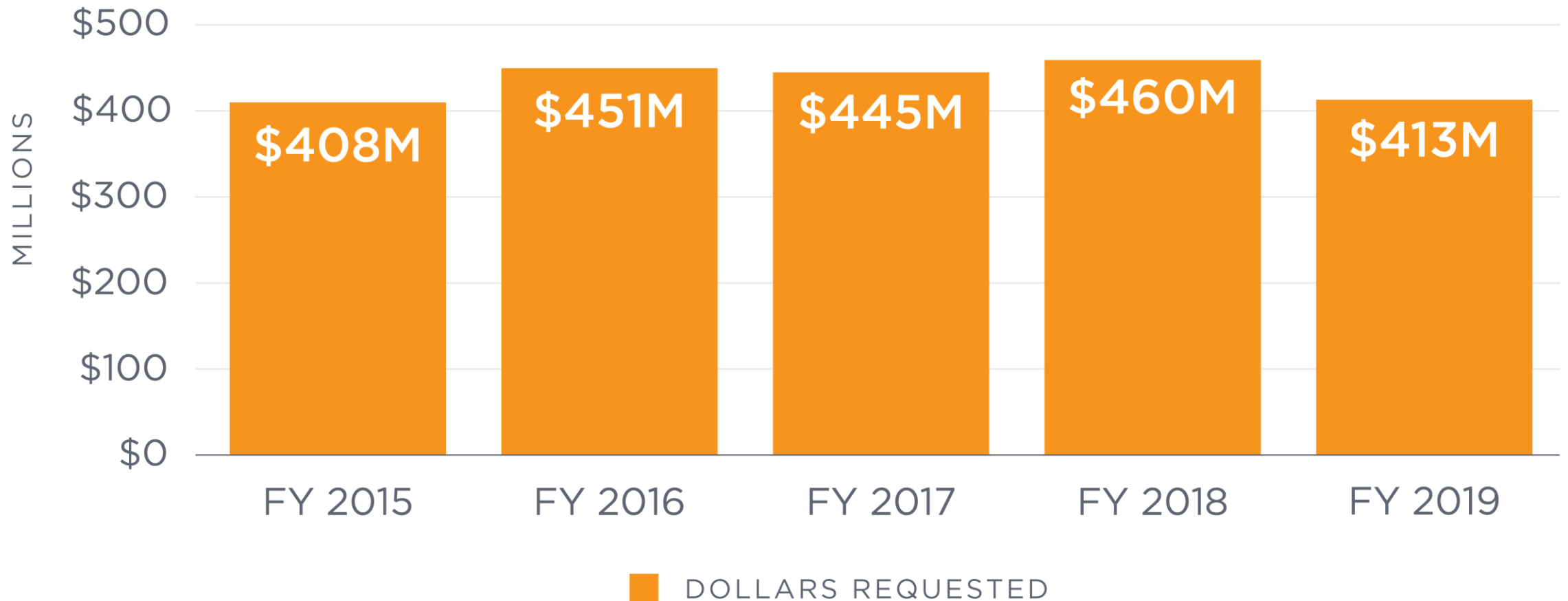
Gabriel P. López, Ph.D.
Vice President for Research

December 5, 2019



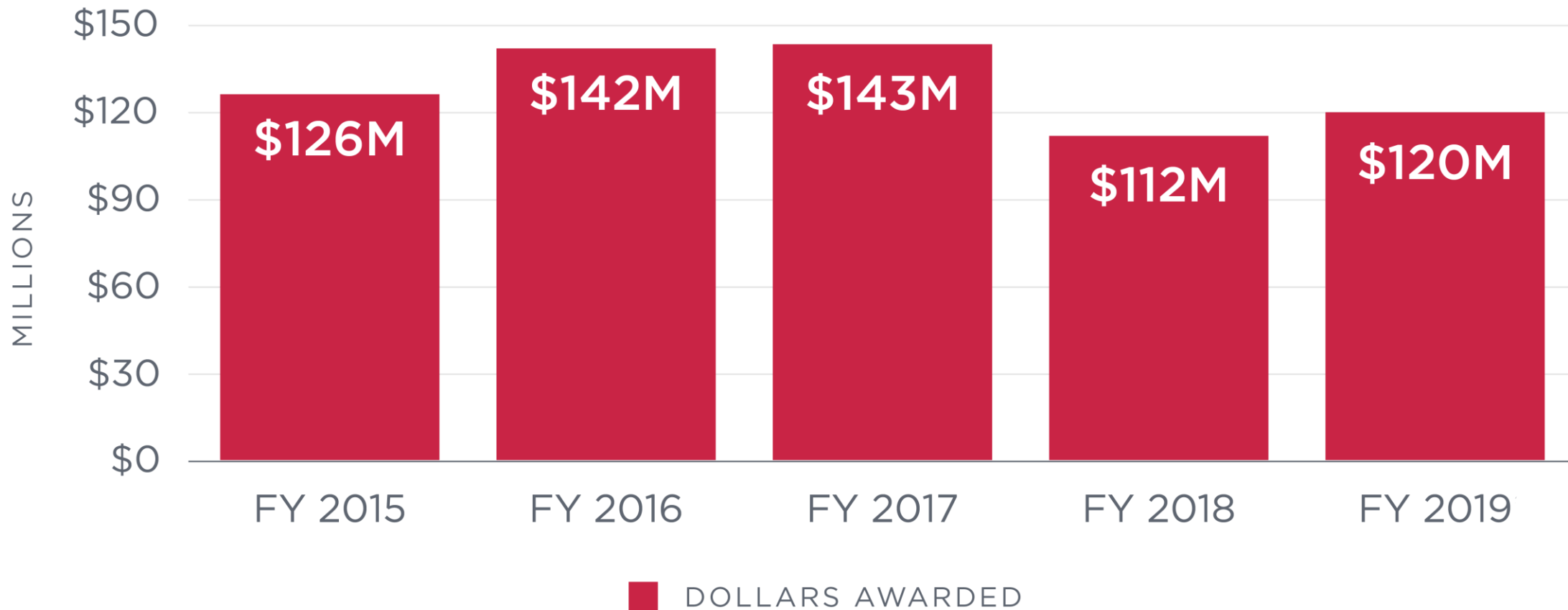
Proposals

UNM Main & Branch Campuses



Awards

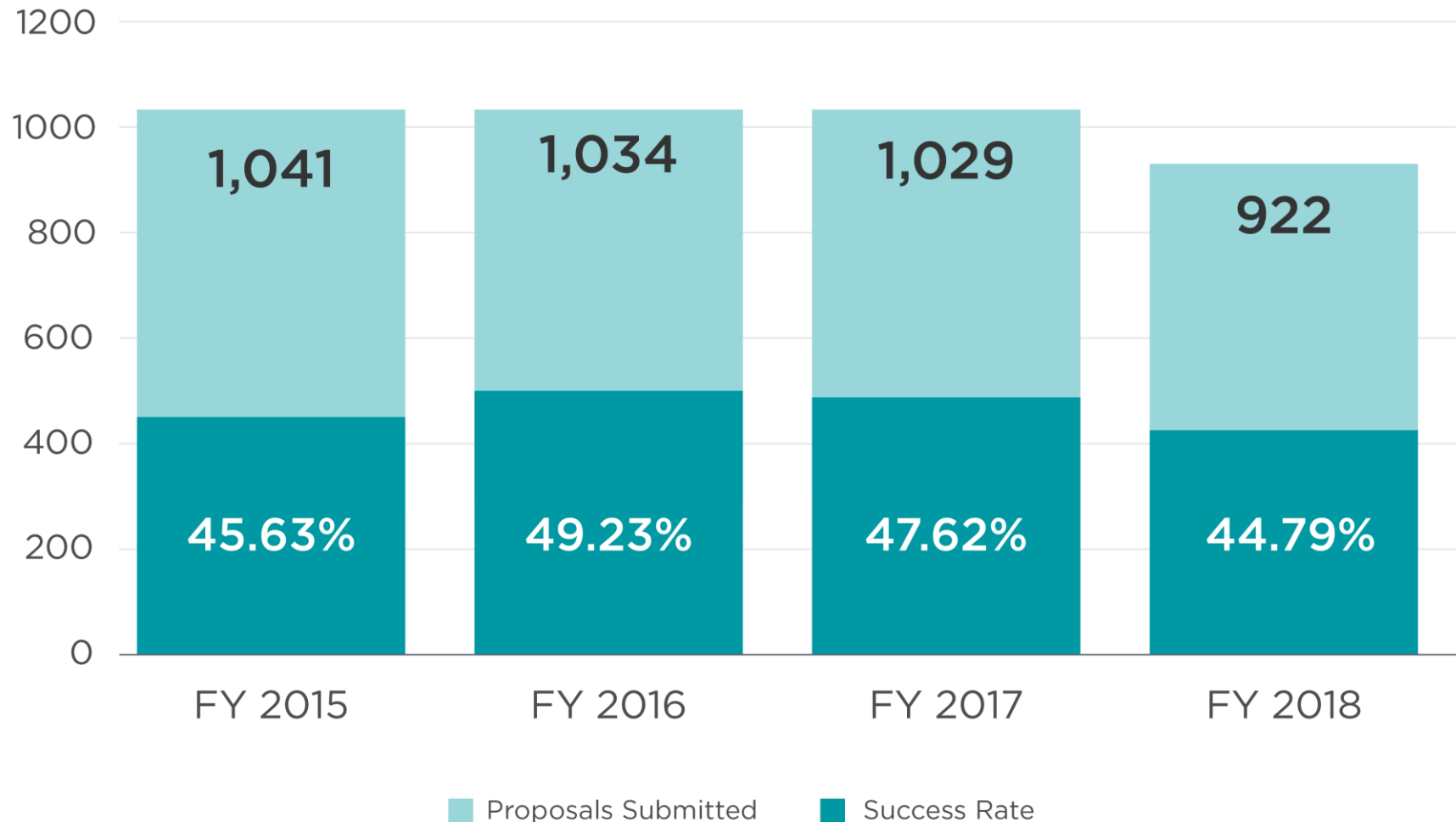
UNM Main & Branch Campuses



NOTE: EXCLUDES FINANCIAL AID

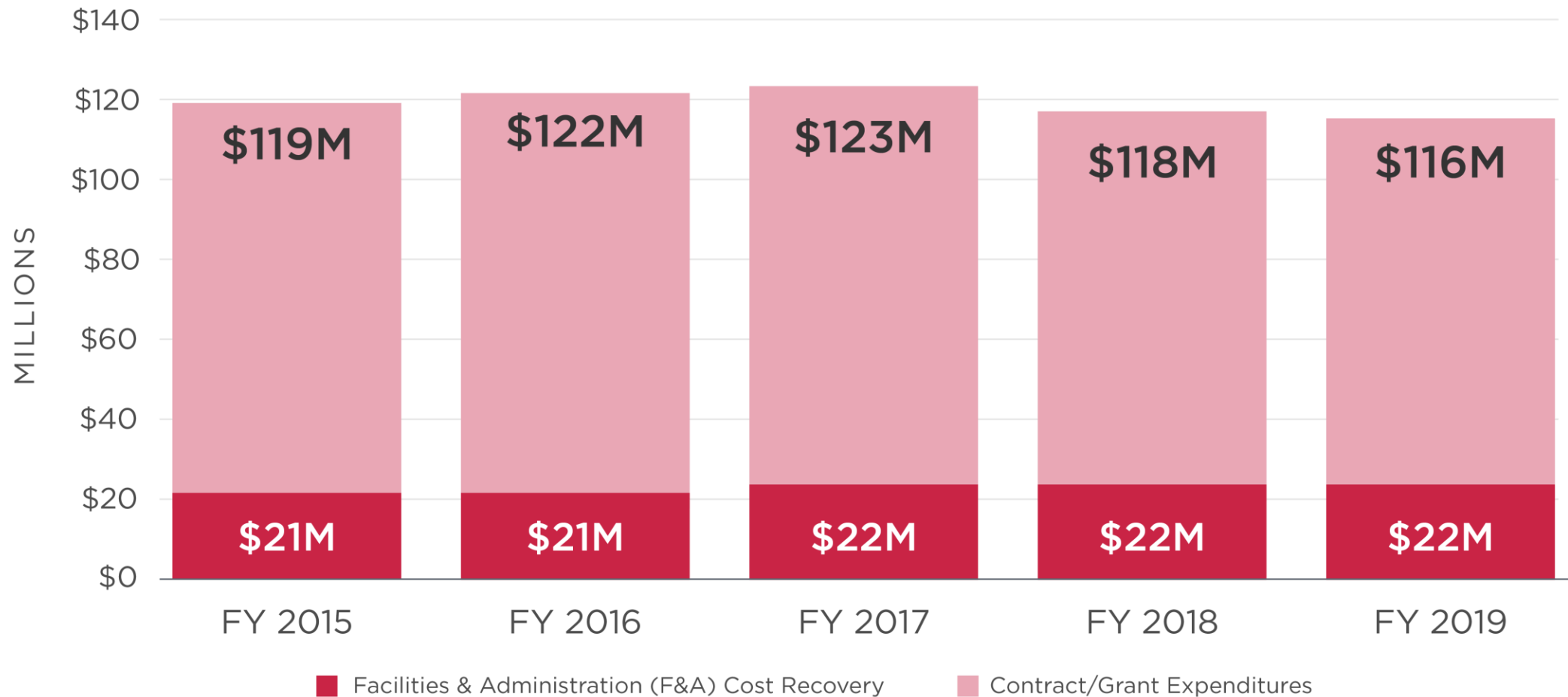
Proposals Submitted & Success Rates

UNM Main Campus

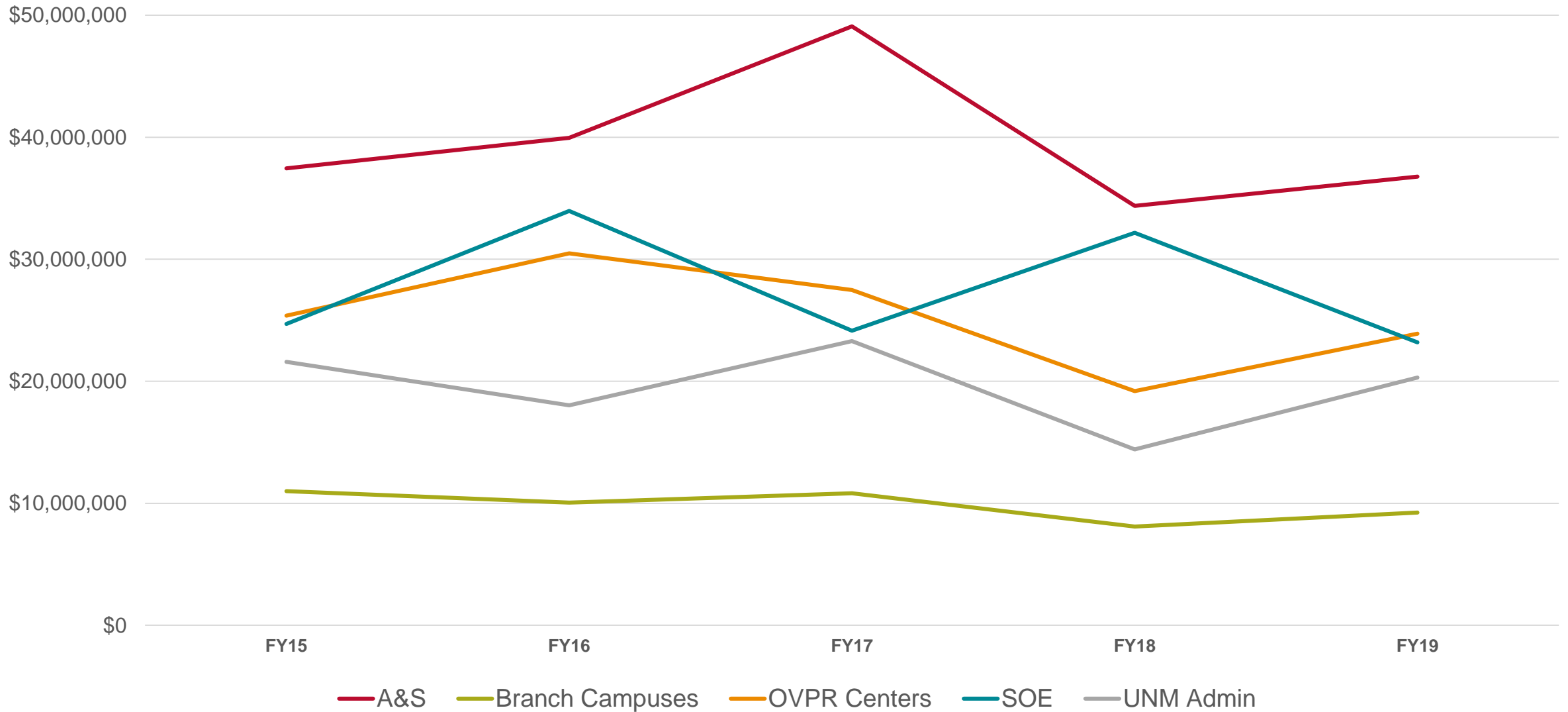


Research Expenditures + Facilities & Administration (F&A) Cost Recovery

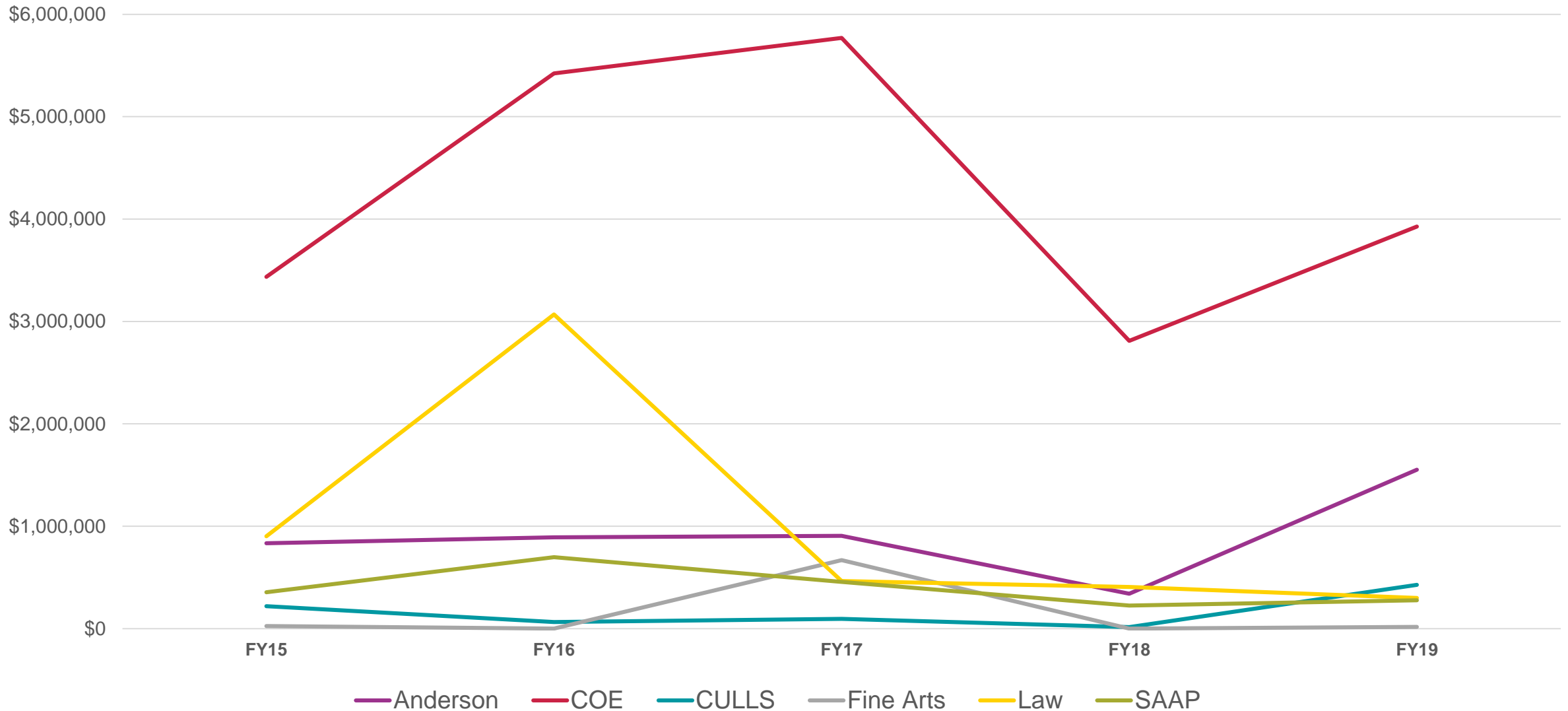
UNM Main & Branch Campuses



Research Trends for Units with Awards over \$8M



Research Trends for Units with Awards under \$8M



FY 2019-2020 Revenue

UNM Main & Branch
Campuses

NOTE: HSC and UNMH
are not included.

Source: UNM Operating Capital
& Budget Plans
<https://goto.unm.edu/budget2020>

