Board of Regents Meeting

Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska
Notice of Meeting

Consent Agenda

XI-A-1 UNL Elimination of BA in Computer Science
XI-A-2 UNL Creation of BS in Environmental Engineering
XI-A-3 UNL Creation BS in Statistics and Data Analytics
XI-A-4 UNL Creation PhD in Biomedical Engineering
XI-A-5 UNL Creation School of Computing
XI-A-6 UNMC Creation Master of Respiratory Care
XI-A-7 UNMC Establishment Genome Editing & Education Center Nebr
XI-A-8 Approve award of Honorary Degree

Business and Finance

XI-B-1 CDWG Strategic supplier agreement for IT hardware
XI-B-2 UNL Kiewit Hall Budget Increase and IDR

Executive

XI-C-1 Standing Rules Amendment (Virtual Meetings)
XI-C-2 President's Performance Based Merit Pay
XI-C-3 Outside Service

Reports Agenda

XI-D-1 UNO French Graduate Certificate Expedited
XI-D-2 UNO Machine Learning Graduate Certificate Expedited
XI-D-3 UNO Sociology Graduate Certificate Expedited
XI-D-4 UNO Teaching Spanish to Heritage-Bilingual Learners Grad Cert Expedited
XI-D-5 UNMC Wigton Heritage Center - Hoellerich Naming
NOTICE OF MEETING

Notice is hereby given that the Board of Regents of the University of Nebraska will meet in a publicly convened session on Friday, August 13, 2021, at 9:00 a.m. in the board room of Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska.

An agenda of subjects to be considered at said meeting, kept on a continually current basis, is available for inspection in the office of the Corporation Secretary of the Board of Regents, Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska, or at https://nebraska.edu/regents/agendas-minutes

A copy of this notice will be delivered to the Lincoln Journal Star, the Omaha World-Herald, the Daily Nebraskan, the Gateway, the Antelope, the Kearney Hub, the Lincoln office of the Associated Press, members of the Board of Regents, and the President’s Council of the University of Nebraska.

Dated: August 6, 2021

Philip Bakken
Corporation Secretary
Board of Regents
University of Nebraska
I. CALL TO ORDER

II. ROLL CALL

III. APPROVAL OF MINUTES AND RATIFICATION OF ACTIONS TAKEN ON JUNE 25, 2021

IV. PRESENTATIONS
   Legislative Update: Senator John Stinner, Appropriations Committee Chairman

V. KUDOS
   Richard Wardyn, University of Nebraska at Kearney
   Jordan Malone, University of Nebraska-Lincoln
   Lauren Lesiak, University of Nebraska Medical Center
   Nik Stevenson, University of Nebraska at Omaha

VI. PUBLIC COMMENT
   The Standing Rules of the Board provide that any person who gives 24 hours’ notice to the Corporation Secretary of the Board may speak to any item that is not on the agenda. In addition, any person may appear and address the Board of Regents on any item on the agenda for this meeting. Each person will be given up to five minutes to make his or her remarks. Public comment will be limited to a period of 30 minutes.

VII. RESOLUTIONS
   Resolution regarding Critical Race Theory, Addendum VII-1

VIII. HEARINGS
   Amend Section 2 of the Standing Rules of the Board of Regents of the University of Nebraska

IX. PRESIDENT’S REMARKS

X. UNIVERSITY CONSENT AGENDA
   A. ACADEMIC AFFAIRS

   B. BUSINESS AND FINANCE
      University of Nebraska-Lincoln
      1. Approve the reappointment of Tom Henning and Dana Bradford as members of the “Class A” Directors of the NICDC Board of Directors for three-year terms effective July 1, 2021, Addendum X-B-1
XI. UNIVERSITY ADMINISTRATION AGENDA

A. ACADEMIC AFFAIRS

University of Nebraska-Lincoln
1. Approval to eliminate the Bachelor of Arts (BA) in Computer Science, Addendum XI-A-1
2. Approval to create the Bachelor of Science (BS) in Environmental Engineering, Addendum XI-A-2
3. Approval to create the Bachelor of Science (BS) in Statistics and Data Analytics, Addendum XI-A-3
4. Approval to create the Doctor of Philosophy (PhD) in Biomedical Engineering, Addendum XI-A-4
5. Approval to create the School of Computing, Addendum XI-A-5

University of Nebraska Medical Center
6. Approval to create the Master of Respiratory Care, Addendum XI-A-6
7. Approval to create the Genome Editing and Education Center - Nebraska, Addendum XI-A-7

University of Nebraska
8. Approval of Honorary Degree Award, Addendum XI-A-8

B. BUSINESS AND FINANCE

University of Nebraska
1. Approve agreement designating CDWG as strategic supplier of IT hardware for University of Nebraska system, Addendum XI-B-1

University of Nebraska-Lincoln
2. Approve revisions to the Kiewit Hall project and receive report from Business and Finance Committee regarding Intermediate Design Review, Addendum XI-B-2

C. EXECUTIVE

1. Approval of amendments to the Standing Rules of the Board of Regents, Addendum XI-C-1
2. Approve grant of performance-based merit pay to President Carter for FY2020-21, Addendum XI-C-2
3. Approval of President Carter’s request to serve as a paid member of an outside Board of Directors, Addendum XI-C-3

D. REPORTS

1. Expedited Approval of French Graduate Certificate, Addendum XI-D-1
2. Expedited Approval of Machine Learning Graduate Certificate, Addendum XI-D-2
3. Expedited Approval of Sociology Graduate Certificate, Addendum XI-D-3
4. Expedited Approval of Teaching Spanish to Heritage/Bilingual Learners Graduate Certificate, Addendum XI-D-4
5. Approve the correct naming of The History of Teaching Tools Exhibit within the Wigton Heritage Center, Addendum XI-D-5
6. Bids and Contracts, Addendum XI-D-6
7. President’s FY2020-21 Self-assessment, Addendum XI-D-7

XII. ADDITIONAL BUSINESS
Critical Race Theory Resolution

WHEREAS, all campuses and facilities of the University of Nebraska system are places for open reflection, discussion, study, research, and learning; and

WHEREAS, America is the best country in the world and anyone can achieve the American Dream here; and

WHEREAS, education, free speech, and sound learning are the keys to freedom and opportunity in this country; and

WHEREAS, we oppose discrimination in any form in the classroom, on campus, and in our communities, and we support the safety and wellbeing of all students, faculty, and staff; and

WHEREAS, Critical Race Theory does not promote inclusive and honest dialogue and education on campus; and

WHEREAS, Critical Race Theory seeks to silence opposing views and disparage important American ideals.

NOW, THEREFORE BE IT RESOLVED by the Board of Regents of the University of Nebraska, that the Regents of the University of Nebraska oppose Critical Race Theory being imposed in curriculum, training, and programming.
X. UNIVERSITY CONSENT AGENDA

A. ACADEMIC AFFAIRS

B. BUSINESS AFFAIRS

University of Nebraska-Lincoln

1. Approve the reappointment of Tom Henning and Dana Bradford as members of the “Class A” Directors of the NICDC Board of Directors for three-year terms effective July 1, 2021, Addendum X-B-1
TO: The Board of Regents
Business and Finance Committee

MEETING DATE: August 13, 2021

SUBJECT: The reappointment of Tom Henning and Dana Bradford to the Nebraska Innovation Campus Development Corporation (NICDC) Board of Directors

RECOMMENDED ACTION: Approve the reappointment of Tom Henning and Dana Bradford as members of the “Class A” Directors of the NICDC Board of Directors for three-year terms effective July 1, 2021

PREVIOUS ACTION:
June 26, 2020 – The Board of Regents approved the reappointment of Ronnie Green, Larry Miller, Bob Wilhelm, and Michael Yanney as members of the “Class C” Directors of the NICDC Board of Directors for three-year terms effective July 1, 2020.

November 20, 2014 – The Board of Regents approved staggered terms for the NICDC Board of Directors.

April 16, 2021 – the Board of Regents approved the Articles of Incorporation and Bylaws of the Nebraska Innovation Campus Development Corporation. The Board of Regents also approved the original appointments of the Board of Directors of the NICDC.

EXPLANATION: The management of the affairs of the NICDC shall be vested in a Board of Directors, whose operations in governing the Corporation shall be as set forth by statute and in the Corporation’s Bylaws. No Director shall have any right, title, or interest in or to any property held in the name of, or for the benefit of the Nebraska Innovation Campus Development Corporation.

The governance recommendations in the Business Plan for Innovation Campus included a nonprofit 501(c)3 entity to be created under the umbrella of the University Technology Development Corporation (UTDC). “This entity would have responsibility to assist the Board of Regents… in the acquisition, financing, improvement, and operation of the campus, research park, and other related properties including the design, development, construction, marketing, and leasing…”

The appointment of the NICDC Board of Directors is to be made by the Board of Regents of the University of Nebraska upon the recommendation of the UNL Chancellor and President.

If the action recommended is approved, then the classes and terms of the directors shall be as follows:
Class A Directors (term expires 6/30/2024)
Dana Bradford*
Tom Henning*

Class B Directors (term expires 6/30/2022)
Michael Boehm
Tonn Ostergard*
Matt Williams*

Class C Directors (term expires 6/30/2023)
Ronnie Green
Larry Miller*
Bob Wilhelm
Michael Yanney*

Ex-officio
Daniel Duncan

*Non-University directors

This item has been reviewed by the Business and Finance Committee.

SPONSOR:          William J. Nunez
                   Vice Chancellor for Business and Finance

RECOMMENDED:      Ronnie D. Green, Chancellor
                   University of Nebraska-Lincoln

Walter E. Carter, President
University of Nebraska

DATE:             July 16, 2021
XI. UNIVERSITY ADMINISTRATIVE AGENDA

A. ACADEMIC AFFAIRS

University of Nebraska-Lincoln

1. Approval to eliminate the Bachelor of Arts (BA) in Computer Science, Addendum XI-A-1

2. Approval to create the Bachelor of Science (BS) in Environmental Engineering, Addendum XI-A-2

3. Approval to create the Bachelor of Science (BS) in Statistics and Data Analytics, Addendum XI-A-3

4. Approval to create the Doctor of Philosophy (PhD) in Biomedical Engineering, Addendum XI-A-4

5. Approval to create the School of Computing, Addendum XI-A-5

University of Nebraska Medical Center

6. Approval to create the Master of Respiratory Care, Addendum XI-A-6

7. Approval to create the Genome Editing and Education Center-Nebraska, Addendum XI-A-7

8. Approval of Honorary Degree Award, Addendum XI-A-8

B. BUSINESS AND FINANCE

University of Nebraska

1. Approve agreement designating CDWG as strategic supplier of IT hardware for University of Nebraska system, Addendum XI-B-1

University of Nebraska-Lincoln

2. Approve revisions to the Kiewit Hall project and receive report from Business and Finance Committee regarding Intermediate Design Review, Addendum XI-B-2

C. EXECUTIVE

1. Approval of amendments to the Standing Rules of the Board of Regents, Addendum XI-C-1

2. Approve grant of performance-based merit pay to President Carter for FY2020-21, Addendum XI-C-2
3. Approval of President Carter’s request to serve as a paid member of an outside Board of Directors, Addendum XI-C-3
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Elimination of the Bachelor of Arts in Computer Science in the Department of Computer Science and Engineering in the College of Arts and Sciences at the University of Nebraska-Lincoln

RECOMMENDED ACTION: Approval to eliminate the Bachelor of Arts (BA) in Computer Science in the Department of Computer Science and Engineering in the College of Arts and Sciences at the University of Nebraska-Lincoln (UNL)

PREVIOUS ACTION: The Bachelor of Arts (BA) and Bachelor of Science (BS) degrees in Computer Science at UNL were established prior to modern records of Board approvals.

EXPLANATION: UNL Computer Science students have the choice of either a BA or a BS degree. The vast majority of students select a BS degree; the BA degree is rarely chosen. With the proposed creation of the School of Computing solely administered by the College of Engineering, the BA degree would not be an appropriate curricular option. Student and employer demand for computer science-related degrees continues to be high. UNL offers BS degrees in Computer Science, Computer Engineering, and Software Engineering; several minors and graduate degrees also available.

The two students currently enrolled in the BA degree, if they choose not to transfer to a BS degree, will be allowed to complete their degree following the BA curriculum.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM SAVINGS: $0; no budgetary impact is expected due to the low number of students who have chosen this degree program.

SPONSORS: Elizabeth Spiller
Executive Vice Chancellor and Chief Academic Officer

Ronnie D. Green, Chancellor
University of Nebraska-Lincoln

RECOMMENDED: Jeffrey P. Gold, M.D.
Executive Vice President and Provost

DATE: July 16, 2021
TO: The Board of Regents

Addendum XI-A-2

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Creation of a Bachelor of Science in Environmental Engineering in the Department of Civil and Environmental Engineering in the College of Engineering at the University of Nebraska-Lincoln

RECOMMENDED ACTION: Approval to create a Bachelor of Science (BS) in Environmental Engineering in the Department of Civil and Environmental Engineering in the College of Engineering at the University of Nebraska-Lincoln (UNL)

PREVIOUS ACTIONS: June 28, 2019 – The renaming of the Department of Civil Engineering to the Department of Civil and Environmental Engineering in the College of Engineering at UNL was reported to the Board.

November 3, 1995 – The Board approved the proposed Master of Science in Environmental Engineering at UNL.

EXPLANATION: The proposed UNL BS degree in Environmental Engineering will provide students with skills focused on applying engineering principles to protect human health from adverse environmental factors, protect the environment, and improve environmental quality. The proposed degree will prepare students to devise engineering solutions for topics ranging from water and air pollution control and treatment, drinking water supply, wastewater management, solid waste management, public health, water resources management, and sustainable design and industrial ecology. The degree will include the standard curricular components required to obtain discipline-specific professional engineering accreditation (ABET) and to prepare students for professional licensure in the discipline of Environmental Engineering.

The Executive Vice President and Provost has confirmed, like most engineering programs, that the curricular content to meet accreditation standards and the technical content-mastery required for professional licensure can’t be met within a 120-credit hour program. The BS in Environmental Engineering will require 125 credit hours.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $119,600 for Year 1; $1,161,761 over five years

SOURCE OF FUNDS: Tuition and fees

SPONSORS: Elizabeth Spiller
Executive Vice Chancellor and Chief Academic Officer

Ronnie D. Green, Chancellor
University of Nebraska-Lincoln
RECOMMENDED:

Jeffrey P. Gold, M.D.
Executive Vice President and Provost

DATE:
July 16, 2021
TO: The Board of Regents

MEETING DATE: August 13, 2021

SUBJECT: Creation of a Bachelor of Science in Statistics and Data Analytics in the Department of Statistics in the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln

RECOMMENDED ACTION: Approval to create a Bachelor of Science (BS) in Statistics and Data Analytics in the Department of Statistics in the College of Agricultural Science and Natural Resources at the University of Nebraska-Lincoln (UNL)

PREVIOUS ACTIONS:
March 5, 2005 – The renaming of the major in Mathematics and Statistics to the Major in Mathematics at UNL was reported to the Board.

June 7, 2003 – The Board approved the merger of the Division of Statistics within the Department of Mathematics and Statistics and the Department of Biometry to form the new Department of Statistics. The Department of Mathematics and Statistics was renamed the Department of Mathematics.

June 7, 2003 – The Board approved the consolidation of the Master of Science in Biometry and the statistics specialization of the Master of Science in Mathematics and Statistics into a single Master of Science in Statistics from the Department of Statistics.

June 7, 2003 – The Board approved moving the administrative responsibility for the Statistics PhD from the Department of Mathematics to the new Department of Statistics.

EXPLANATION: The proposed BS degree in Statistics and Data Analytics is designed for students who wish to pursue careers in statistics, machine learning, and data analytics. The State of Nebraska does not have, at any institution, an undergraduate degree dedicated to Statistics and Data Analytics. The proposed curriculum will interweave statistical thinking and computing with writing, data exploration, and data analysis. Students will be able to identify problems that can be informed by data, collect the data, analyze it appropriately, and communicate the results in a readily understandable manner. Upon graduation, students will be qualified for immediate employment at a variety of business and technology companies; they also will be prepared for graduate studies in Statistics, Biostatistics and related fields.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $5,000 in Year 1; $25,000 over five years

SOURCE OF FUNDS: Tuition and fees
SPONSORS:
Michael J. Boehm
Vice President, Agriculture and Natural Resources, University of Nebraska
Harlan Vice Chancellor, Institute of Agriculture and Natural Resources,
University of Nebraska-Lincoln

Elizabeth Spiller
Executive Vice Chancellor and Chief Academic Officer

Ronnie D. Green, Chancellor
University of Nebraska-Lincoln

RECOMMENDED:

Jeffrey P. Gold, M.D.
Executive Vice President and Provost

DATE:
July 16, 2021
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Creation of a Doctor of Philosophy degree in Biomedical Engineering in the College of Engineering at the University of Nebraska-Lincoln

RECOMMENDED ACTION: Approval to create a Doctor of Philosophy (PhD) degree in Biomedical Engineering in the College of Engineering at the University of Nebraska-Lincoln (UNL)

PREVIOUS ACTION: April 13, 2012 – The Board approved the disaggregation of seven department-based tracks of the unified PhD in Engineering at UNL into stand-alone PhD degree programs: Architectural Engineering; Biological Engineering; Chemical and Biomolecular Engineering; Civil Engineering; Computer Engineering; Electrical Engineering; and Mechanical Engineering and Applied Mechanics.

May 18, 1973 – The Board approved initiating a unified interdepartmental PhD program in Engineering.

EXPLANATION: UNL currently offers a Biomedical Engineering specialization for its general PhD in Engineering degree; 25 students are enrolled in the specialization. As with the programs disaggregated from the PhD in Engineering in 2011, the discipline of Biomedical Engineering has developed, matured, and grown nationally and the need for Biomedical Engineering PhDs also is growing. The interdisciplinary field focuses on employing engineering techniques to improve human health by incorporating both engineering and biomedical knowledge and techniques. Student demand, faculty, and resources are in place to support the stand-alone program. The proposed PhD will promote greater visibility, resulting in more effective recruitment of prospective students and faculty, as well as placement of PhD graduates. The proposed degree will help Nebraska meet its goals for workforce development and the program’s research efforts will support improving human health throughout the world.

This proposal has been approved by the Council of Academic Officers and the Executive Graduate Council. This proposal also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $0 (No new faculty or resources are needed to operate this program.)

SOURCE OF FUNDS: N/A

SPONSORS: Elizabeth Spiller
Executive Vice Chancellor and Chief Academic Officer

Ronnie D. Green, Chancellor
University of Nebraska-Lincoln
RECOMMENDED:

Jeffrey P. Gold, M.D.
Executive Vice President and Provost

DATE:

July 16, 2021
TO: The Board of Regents

Addendum XI-A-5

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Creation of the School of Computing in the College of Engineering by renaming the existing Department of Computer Science and Engineering currently shared between the College of Arts and Sciences and the College of Engineering at the University of Nebraska-Lincoln

RECOMMENDED ACTION: Approval to create the School of Computing in the College of Engineering by renaming the existing Department of Computer Science and Engineering (CSE) currently shared between the College of Arts and Sciences and the College of Engineering at the University of Nebraska-Lincoln (UNL)

PREVIOUS ACTION: March 12, 1988 – The Board approved a proposed new Department of Computer Science and Engineering at UNL.

EXPLANATION: Enrollment in the UNL Department of Computer Science and Engineering is growing — up 83% over the past five years to nearly 1,000 undergraduate and graduate students. UNL estimates that the unit will reach 2,500 full-time students by 2030. To better serve students, the UNL College of Engineering proposes to create a School of Computing by renaming the existing Department of Computer Science and Engineering. The Department is currently housed jointly between two colleges, the College of Arts and Science and the College of Engineering. The proposed School of Computing will have an administrative home solely in the College of Engineering, which will enhance administrative efficiency. The proposed School will offer UNL’s existing signature undergraduate and graduate programs in Software Engineering, Computer Engineering and Computer Science. The constellation of specializations and skills brought together in the School of Computing will allow faculty to pursue new opportunities to engage in cross-disciplinary education and collaborative research with students and other faculty across the University.

There are no changes to the program statuses with the Accrediting Board for Engineering and Technology (ABET). Programs in CSE currently accredited by ABET will remain so when housed in the School of Computing.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $0 (No net-new costs)

SOURCE OF FUNDS: Budgets for the Department of Computer Science and Engineering within the College of Engineering and the College of Arts & Sciences will be used to fund the proposed School of Computing
SPONSORS:  
Elizabeth Spiller  
Executive Vice Chancellor and Chief Academic Officer

Ronnie D. Green, Chancellor  
University of Nebraska-Lincoln

RECOMMENDED:  
Jeffrey P. Gold, M.D.  
Executive Vice President and Provost

DATE:  
July 16, 2021
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Creation of the Master of Respiratory Care in the College of Allied Health Professions at the University of Nebraska Medical Center

RECOMMENDED ACTION: Approval to create the Master of Respiratory Care (MRT) in the College of Allied Health Professions at the University of Nebraska Medical Center (UNMC)

PREVIOUS ACTIONS:
- April 17, 2020 – The Board approved the creation of the Master of Diagnostic Cytology in the College of Allied Health Professions at UNMC.
- August 11, 2017 – The Board approved the creation of the Masters in Genetic Counseling in the College of Allied Health Professions at UNMC.
- January 29, 2016 – The Board approved the creation of the Master of Medical Nutrition in the College of Allied Health Professions at UNMC.
- January 16, 1999 – The Board approved the creation of the Masters of Perfusion Science in the School of Allied Health Professions at UNMC.
- January 18, 1992 – The Board approved the change of the Physician Assistant program from a Baccalaureate to a first professional Master’s degree program at UNMC.

EXPLANATION: The College of Allied Health Professions (CAHP) at the University of Nebraska Medical Center (UNMC) proposes to establish a new entry-level health professions Master of Respiratory Care (MRC) degree. Respiratory therapy is an allied health profession dedicated to evaluating and treating persons with heart and lung diseases. Respiratory therapists initiate, monitor, modify, and discontinue mechanical ventilator support for patients receiving this care. In addition, respiratory therapists perform diagnostic studies (e.g., arterial blood gases, pulmonary function testing, exercise testing, sleep apnea testing), provide patient education, and provide long-term care for patients with chronic illness. Students with an MRC degree will have advanced skill sets, benefiting Nebraska’s health facilities and patients. The proposed MRC curriculum is designed to meet new accreditation standards from the Commission on Accreditation for Respiratory Care.

This proposal has been approved by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $111,177 for Year 1; $3,086,735 over five years

SOURCE OF FUNDS: College/campus auxiliary funds for the first three years, and tuition and fees beginning in Year 3.
SPONSORS:
H. Dele Davies
Senior Vice Chancellor for Academic Affairs

Jeffrey P. Gold, Chancellor
University of Nebraska Medical Center

RECOMMENDED:
Jeffrey P. Gold, M.D.
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

DATE: July 16, 2021
April 9, 2021

Susan Fritz, Executive Vice President and Provost
University of Nebraska
3835 Holdrege Street
Lincoln, NE 68583

Dear Provost Fritz:

We are forwarding you the materials relating to the creation of a Masters in Respiratory Care program, administered by the College of Allied Health Professions. Respiratory therapy is an allied health profession dedicated to the evaluation and treatment of persons with heart and lung diseases. Respiratory therapists are key members of health profession teams focused on the ongoing management of patients with acute pulmonary disease. There is already high demand for these health care professionals, and the need will continue to grow as a result of the Covid-19 pandemic. Given the long-term respiratory-related sequela of patients recovering from moderate to severe forms of the disease, it is likely respiratory therapy service demand will remain above pre-pandemic levels.

This proposal has been reviewed by us, and it has our approval. We are requesting your review and approval, that of the Chief Academic Officers, and that it be reported to the Board of Regents at an upcoming meeting.

Sincerely,

H. Dele Davies, MD, MS, MHCM
Senior Vice Chancellor

Jeffrey P. Gold, M.D.
Chancellor

Enc: Proposal MS Respiratory Care
University of Nebraska Medical Center
New Major or Degree

I. Descriptive Information

<table>
<thead>
<tr>
<th>Name of Institution Proposing New Major or Degree</th>
<th>University of Nebraska Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Proposed Major</td>
<td>Respiratory Therapy</td>
</tr>
<tr>
<td>Degree to be Awarded to Graduates of the Major</td>
<td>Master of Respiratory Care (MRC)</td>
</tr>
<tr>
<td>Other Majors or Degrees Offered in this Field by Institution</td>
<td>None</td>
</tr>
<tr>
<td>CIP Code</td>
<td>51.0908</td>
</tr>
</tbody>
</table>

II. Details

A. Purpose of the Proposed Major or Degree
The College of Allied Health Professions (CAHP) at the University of Nebraska Medical Center (UNMC) proposes to establish a new entry-level health professions education program in respiratory therapy. Respiratory therapy is an allied health profession dedicated to the evaluation and treatment of persons with heart and lung diseases. Respiratory therapists are key members of health profession teams focused on the ongoing management of patients with acute pulmonary disease such as acute respiratory tract infections, pneumonia, pulmonary edema, acute respiratory distress syndrome (ARDS), and other causes of respiratory failure, as well as chronic lung disease, such as asthma, chronic lower respiratory disease (formerly chronic obstructive pulmonary disease), cystic fibrosis, and pulmonary fibrosis.

Respiratory therapists perform their duties in a number of care delivery venues, spending considerable time in acute settings providing care for patients in critical care units (CCU). Respiratory therapists initiate, monitor, modify, and discontinue mechanical ventilator support for patients receiving this care in a CCU.

In addition, respiratory therapists perform diagnostic studies (e.g., arterial blood gases, pulmonary function testing, exercise testing, sleep apnea testing), provide patient education (e.g., smoking cessation, asthma education, CLRD management and rehabilitation), and provide long-term care for patients with chronic illness.
B. Description of the Proposed Major or Degree
The CAHP proposes to develop an entry-to-practice Master of Respiratory Care degree program open to students who complete pre-requisite coursework but who have no prior competence in respiratory therapy. The program of study would require students to complete either a bachelor’s degree or a minimum of three-years and 90-credit hours at an undergraduate accredited university, prior to applying to the program at UNMC. The undergraduate course of study would include specifically identified pre-requisites courses. The UNMC professional curriculum will consist of an 82-credit hour program delivered over 5 semesters (21 months) awarding a Master of Respiratory Care degree (hereafter MRC). Students entering the professional component of the curriculum following three-years (90 credits) of undergraduate preparation, will also be awarded a Bachelor’s degree in Medical Sciences from UNMC.

The accreditation agency for respiratory therapy programs, the Commission on Accreditation for Respiratory Care (CoARC), requires new program applicants to identify a “base program” for initial accreditation. A base program is defined as the “primary, degree-granting respiratory care program established by the sponsor.”¹⁴, p. 23 Sponsors can offer only one base program, defined as either “entry-level,” “degree advancement,” or “advanced practice.” In accordance with CoARC nomenclature, the CAHP proposes to develop an “entry-level” base program awarding a master’s degree. Currently, only eight universities in the US offer master’s degree programs in the field of respiratory therapy² (see Table 1) with only five of these programs designated as “entry-level.”

Table 1. Universities with CoARC Accredited Master’s Degree Programs

<table>
<thead>
<tr>
<th>INSTITUTION</th>
<th>STATE</th>
<th>DEGREE</th>
<th>CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia State University</td>
<td>GA</td>
<td>MS Degree</td>
<td>Entry into the Profession</td>
</tr>
<tr>
<td>Rush University Medical Center</td>
<td>IL</td>
<td>MS Degree</td>
<td>Entry into the Profession</td>
</tr>
<tr>
<td>Bellarmine University</td>
<td>KY</td>
<td>MS Degree</td>
<td>Entry into the Profession</td>
</tr>
<tr>
<td>UNC Charlotte</td>
<td>NC</td>
<td>MS Degree</td>
<td>Degree Advancement</td>
</tr>
<tr>
<td>CHI St. Alexius Health/University of Mary</td>
<td>ND</td>
<td>MS Degree</td>
<td>Entry into the Profession</td>
</tr>
<tr>
<td>University of Texas Health Science Center</td>
<td>TX</td>
<td>MS Degree</td>
<td>Entry into the Profession</td>
</tr>
<tr>
<td>Boise State University</td>
<td>ID</td>
<td>MS Degree</td>
<td>Degree Advancement</td>
</tr>
<tr>
<td>The Ohio State University</td>
<td>OH</td>
<td>MS Degree</td>
<td>Advanced Practice Respiratory Therapy</td>
</tr>
</tbody>
</table>

C. Rationale for Developing a Master’s Degree Program
The decision to propose the development of an entry-level master’s degree was based on the following factors:

1. Evolution of the Profession of Respiratory Therapy
Throughout most of the history of the respiratory therapy profession, entry-level education has occurred at the associate-degree level. Even today, 82 percent of entry-level programs remain at the associate degree level.³ However, like so many allied health professions that have over time advanced their entry-level degree requirement secondary to expanding knowledge and roles, in 2018 the Commission on Accreditation for Respiratory Care (CoARC) changed the accreditation standard to require all new entry-level programs in respiratory therapy education to award a “baccalaureate or graduate degree.”⁴

The professional organization for respiratory therapy, the American Association for Respiratory Care (AARC) supported this change in accreditation, indicating in a 2019 statement⁵ that all respiratory therapists should hold the minimum of a bachelor’s degree by 2030 (emphasis added).
The 2019 AARC statement followed their 2015 position statement in which they noted,\(^6\)

> ...training and education for entry-to-practice as a respiratory therapist should be provided within programs awarding a bachelor’s or master’s degree in respiratory care (or equivalent degree titles) and all newly accredited respiratory care educational programs must award, as a minimum, the bachelor’s degree in respiratory care (or equivalent degree title).

2. **Consultant’s Recommendation**

In 2019, the CAHP invited a national expert in respiratory therapy education, David Shelledy*, PhD, RRT, FAARC, FASAH, to UNMC to conduct a two-day independent review of the CAHP and its clinical partners (Nebraska Medicine and Children’s Hospital and Medical Center) to examine the feasibility of UNMC initiating a respiratory care educational program, and identify strengths and areas for further development.

Among many recommendations, Dr. Shelledy indicated the CAHP was well poised to develop an entry-to-practice master’s degree program, stating, “The University of Nebraska Medical Center (UNMC) provides sophisticated, state-of-the-art care to patients with acute and chronic illness. Nebraska Medicine provides a unique venue for training advanced level respiratory therapists and a respiratory therapist training program within the College of Allied Health Professions (CAHP) could rapidly develop into a nationally recognized program of excellence.” His complete report is included in Appendix A. In summary he indicated, “UNMC has the infrastructure, clinical facilities, and medical personnel to develop and support an excellent entry-to-practice master’s degree respiratory care educational program to prepare outstanding respiratory therapists with a focus on clinical services delivery” (emphasis added). Dr. Shelledy’s expertise and assessment, including his projection of the likely continued evolution of the profession, were key determinants in shaping this proposal.

3. **Strong Support from the Profession and Nebraska Medicine**

In addition to the recommendation from Dr. Shelledy, the CAHP has also communicated with the Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBRGTE). The CoBRGTE is a national organization consisting of 65 member colleges, universities, and health systems with a mission to advance respiratory care education by advocating for the development and establishment of baccalaureate and graduate-level education for respiratory therapists ([http://www.cobgte.org/](http://www.cobgte.org/)). Among several strategic goals, the CoBRGTE seeks to “transform the profession by advancing quality academic programs, professional knowledge, and faculty resources,” and “increase the number of graduates from baccalaureate and graduate respiratory care educational programs.”

A letter of support from the CoBRGTE President (C. Kane) and Executive Director (T. Barnes) for UNMC to develop a master’s degree program is included in Appendix C. Among many notable insights, Drs. Kane and Barnes cite the value of preparing a respiratory therapy workforce that not only possess the advanced knowledge and skills for effective patient management, but can also serve as educators, researchers, managers, and clinical specialists in support of the US healthcare system. Similar sentiments were also identified by several individuals from UNMC’s clinical partner, Nebraska Medicine (Appendix C), including the need to have graduate-level educated respiratory therapists to deliver the highest-quality, safe care in an increasingly complex environment.

\(^*\)Dr. Shelledy began his career as a respiratory therapist; a career now spanning almost 50 years as clinician, educator and administrator, including serving as Dean of the School of Health Professions, University of Texas Health Science Center at San Antonio, and Dean of the College of Health Sciences at Rush University in Chicago. At both of these universities, he was instrumental in leading the development of entry-level master degree programs in respiratory therapy.

4. **CoARC Outcomes**

Admittedly, as noted in the most recent CoARC 2020 Report on Accreditation in Respiratory Care Education\(^3\) master’s level programs accounted for only 1% of total respiratory therapy education programs in 2019. However, the report also cited several very favorable outcome measures for master’s level programs (as well as programs housed at academic health science/medical centers) as compared to associate or baccalaureate level programs. These outcomes included the highest percentage increase (42%) in applications compared to 2018 (applications to associate degree programs decreased 4.9% and 2.6% for baccalaureate programs), the highest percentage increase in new enrollments (43.5%) compared to 2018 (new enrollments decreased 2.8% for associate degree programs and 3.6% for baccalaureate degree programs), the highest retention rate (97%), and the highest mean employment placement rate (97%). The job
placement rate was also the highest by programs housed at academic health science/medical centers (95%). Master’s degree programs also had the highest mean pass rate for the Registered Respiratory Therapist (RRT) certification examination (95%), as did programs housed at academic health science/medical centers (88%).

5. **Degree Content and Workload**

Pertaining to curricular requirements, CoARC accreditation standard\(^2\) 4.02 indicates that the curriculum must include “preparation for practice as a Registered Respiratory Therapist with exposure to a broad variety of practice settings... and patient populations...” (e.g., professional competencies). The standard goes on to indicate that programs offering a bachelor’s (the minimum degree requirement for new programs) or master’s degree, must also include content related to “leadership development in management, education, research, AND/OR to advanced clinical practice...” (emphasis added). The sample curriculum in Appendix B\(^1\) is generally commensurate with other similar health profession education programs currently housed in the CAHP and consequently completion of the proposed MRC curriculum would be commensurate with the awarding of a master’s degree.

In addition, the CAHP already has several approved courses at the graduate/professional level that could be used as curriculum for leadership, management, education, and research in the MRC curriculum. With respect to advanced clinical practice, expertise in respiratory care at Nebraska Medicine and Children’s Hospital and Medical Center would support the development of advanced clinical practice courses in adult and pediatric critical care to prepare graduates to sit for the adult critical care specialist, and neonatal/pediatric specialist certification examinations administered by the National Board for Respiratory Care (NBRC). This would be a value-added opportunity for graduates to more quickly obtain these specialty certifications. The NBRC is the national organization that also administers the Registered Respiratory Therapy (RRT) certification examination.

6. **Existing Structure of the CAHP**

The CAHP currently houses five other entry-level master degree health profession education programs in the Department of Medical Sciences (diagnostic cytology, genetic counseling, medical nutrition, perfusion science, physician assistant studies), which is also the department where the proposed MRC degree would be housed. A future respiratory therapy program will benefit from this organizational arrangement as it will facilitate the integration of respiratory therapy students with other health profession students in the department, affording the opportunity for shared faculty and existing coursework, and promoting interprofessional education.

7. **CAHP Role and Responsibility**

The mission and obligation of the CAHP is to offer allied health profession education programs that both provide opportunities for students from Nebraska to pursue careers in the allied health professions, and graduate the highest quality allied health workforce to meet the healthcare delivery needs of the citizens of Nebraska, the region and the country. To fulfill this mission, the CAHP programs are, and must continue to be at the “cutting edge” of both health professions education pedagogy, and the evolution of the allied health professions. For example, in 2004, UNMC became one of the first public institutions to offer the Doctor of Physical Therapy (DPT) degree, now the required, standard degree offered by all US accredited physical therapy education programs. Based on the extensive feasibility study undertaken to prepare this proposal, the CAHP and UNMC believe the most appropriate degree to ensure both the success of the proposed program, and the respiratory therapy profession is the master’s entry-level degree.

D. **Accreditation, Curriculum Development, and Admissions Processes**

As noted above, all entry-level programs in respiratory care, regardless of degree offered, are accredited by the Commission on Accreditation for Respiratory Care (CoARC). The CAHP is very familiar with specialized (programmatic) accreditation agencies as it currently works in partnership with eight different agencies responsible for the accreditation of its various programs. All CAHP health profession education programs are fully accredited (or in the case of new programs, provisionally accredited), and all of the CAHP programs have had continuous accreditation from these various agencies since the inception of the respective program. The CAHP will follow all CoARC policies and procedures\(^3\) and adhere to all CoARC accreditation standards\(^4\) to ensure initial, full, and ongoing accreditation for this proposed program.

Student learning outcomes will be guided by CoARC accreditation standards. The distribution of courses and their credit hours will be developed by the Program Director and faculty of the Respiratory Therapy Program following approval of
In summary, the consultant recommended,

The curriculum should include advanced coursework in the areas of patient assessment; protocol development and administration; care plan development, initiation, delivery, modification, and evaluation; critical care and mechanical ventilatory support (adult, pediatric, neonatal and specialty); and cardiopulmonary diagnostics. While the primary focus of the program should be on the preparation of outstanding clinical (bedside) advanced level respiratory therapists, courses and units of instruction should also be included in the areas of leadership, research and education.

All courses will require development in accordance with CoARC standards and the approved CAHP format for course and syllabus development, and will be reviewed and approved by the CAHP’s Curriculum Committee in accordance with existing CAHP policies and procedures.

To be considered for admission, applicants will be required to have completed a minimum of 90 credit hours at an accredited undergraduate institution, to include general pre-health professions pre-requisites (specific requirements TBD) in the biological sciences, chemistry, and mathematics. As is true of all CAHP health profession education programs, enrollment is projected to be limited and competitive. The Respiratory Therapy Program administration, faculty, and other CAHP faculty and/or Nebraska Medicine personnel will comprise the admissions committee for the program, will evaluate each qualified applicant, and make final selections for admission, in accordance with the program and CAHP goals and objectives. The CAHP employs holistic review practices for admission to all of its health profession education programs.

The CAHP has an Office of Enrollment Management and Student Affairs (EMSA), with personnel involved in the marketing and recruitment functions for all of the CAHP health profession programs. This office is managed by a Director of Enrollment Management and Student Affairs (M. Winnicki). The Assistant Dean for Student Affairs (A. Donnelly) oversees the EMSA Office, which is also responsible for student wellness, executing logistics for all admission processes including applicant transcript reviews, and planning for annual CAHP convocation and commencement related activities. The same enrollment management and student affairs services currently provided to the students in all of the health profession education programs in the CAHP will be afforded to the Respiratory Therapy Program and its students.

III. Review Criteria

A. Centrality to UNMC Role and Mission

As noted above, one of the core missions of UNMC is to improve the health of Nebraskans through premier educational programs with the intent of graduating the best-educated health professionals and scientists. The CAHP participates in this mission by preparing a highly qualified allied health workforce to serve Nebraska and the region in each of the fourteen health profession education programs housed in the college.

The UNMC Strategic Goals and Strategies have recently been updated for 2022-2025. The development of a health professions program in respiratory therapy is congruent with many of these goals and objectives. Specifically, Goal 1, “Establish UNMC and its educational programs as the most learner-centered university in health professions and interprofessional education,” and Goal 3, “Establish UNMC and our clinical partners as an academic health system providing the highest-quality care that is recognized for outstanding patient outcomes and a compassionate and patient-centered care experience.”

The development of a new respiratory therapy program awarding an entry-level Master of Respiratory Care degree addresses many of the objectives listed in the new Strategic Plan, including the following objectives:

1.1. Provide an innovative, competency-based and individualized curriculum.
1.4. Actively recruit those faculty needed to expand UNMC’s current & future programs.
1.5. Expand use of Interprofessional Experiential Center for Enduring Learning (iEXCEL)
1.6. Prepare UNMC health profession learners to assume leadership roles.
3.1. Build relationships with our clinical partners to improve patient health outcomes.
3.2. Utilize interprofessional practice to provide optimal patient care environments.
3.5. Assure timely access to UNMC clinical care services.
3.7. Accelerate planning of the UNMC/Nebraska Medicine Project NExT.
3.10 Strengthen incentives to recruit and retain clinical faculty of diverse backgrounds.

B. Relationship of the proposal to the NU Strategic Framework
The development of a respiratory therapist education program is also congruent with elements of the five-year strategic plan put forward by President Carter on behalf of the University of Nebraska system in August 2020.\(^8\) Notably, the development of a respiratory therapy program would provide workforce development opportunities for both those students interested in pursuing this career and for communities in need of these professionals. The current holistic admissions model (including marketing, recruitment and admissions) utilized by the CAHP, will contribute to a diverse workforce of respiratory therapists and provide opportunity for students who may not have previously been aware of this profession or career option.

C. Consistency with the Comprehensive Statewide Plan for Post-Secondary Education
Providing a Master of Respiratory Care degree is consistent with the vision and major statewide goals outlined in the *Comprehensive Statewide Plan for Postsecondary Education (hereafter “Plan”).*\(^9\) The vision for postsecondary education in Nebraska is that “Nebraskans will reap many benefits from affordable, accessible, and high-quality postsecondary education.” And that, “each postsecondary institution will fulfill its role and mission with distinction by being responsive to changing academic, workforce, societal, economic, cultural, and community development needs.”\(^9\) p. 1-1

The creation of a respiratory therapy program awarding the *only* master degree entry-level program in respiratory care in the State of Nebraska, contributes to the fulfillment of this vision as it pertains to UNMC’s responsibility for health professions education. The development of a respiratory therapy program at UNMC would have a direct impact on the following major statewide goals outlined in the Plan:

- Nebraska’s institutions and policymakers will increase participation and success in postsecondary education, particularly for low-income and underrepresented populations, and ensure that all Nebraskans are able to access and successfully complete postsecondary education appropriate to their individual needs and abilities, unrestricted by age, culture, disabilities, religion, race, ethnicity, gender, sexual orientation, gender identity, nationality, socioeconomic status, or geographic location.

- Nebraska’s postsecondary institutions will be student-centered, create inclusive environments that foster student success, and offer lifelong learning opportunities that are responsive to students’ and workforce needs.

- Nebraska colleges and universities will foster critical thinking skills and provide their graduates with the knowledge and workplace skills needed to be successful employees, innovative entrepreneurs, and responsible citizens on a global stage.

- Nebraska will close the historical educational attainment gaps between majority and underrepresented populations and be among the leading states in overall educational attainment.

- Postsecondary education in Nebraska will be responsive to the workforce development and ongoing training needs of employers and industries to build and sustain a knowledgeable, trained, and skilled workforce in both rural and urban areas of the state.

- Postsecondary institutions will contribute to the health and prosperity of the people and to the vitality of the state through research and development efforts, technology transfer and technical assistance, and by attracting external funds to support these activities.
• Postsecondary education will serve the state by preparing individuals for productive, fulfilling lives and by developing and nurturing the citizens and future leaders of Nebraska.

• Each Nebraska institution will fulfill its role and mission in an exemplary manner and will compare favorably with peer institutions.

• Postsecondary education in Nebraska will be effective in meeting the needs of students and the state, will be efficient in its expenditure of the state’s resources, and will be accountable for developing, sustaining, and demonstrating exemplary teaching, learning, research, and public service.

• Nebraska will promote a physical environment at each of its public postsecondary institutions that is supportive of role and mission; is well utilized and effectively accommodates space needs; is safe, accessible, cost effective, and well maintained; and is flexible to adapt to future changes in programs and technologies.

D. Evidence of Need and Demand
According to the Department of Labor, Bureau of Labor Statistics the national demand for respiratory therapists is expected to increase by 19% during the ten-years from 2019-2029. This projected rate of growth is characterized by the Bureau of Labor Statistics as “much faster than average,” with the average combined projected growth rate for all professions projected to be 4%

In addition to percentage increase in employment demand, average annual openings (a combination of new demand and demand resulting from retirements), are projected to be 10,600 across the United States, with 830 average annual openings in Nebraska and its 6 contiguous states (see Table 2). The age of the respiratory therapy workforce in Nebraska may have an impact on average annual openings for respiratory therapists in Nebraska.

A recent workforce study conducted by the University of Nebraska Medical Center Area Health Education Center (AHEC) Program found that of the total respiratory therapist workforce in the State of Nebraska, almost one-quarter (24%) of respiratory therapists were over the age of 56 years. Of these, 9.6% were between the ages of 61-65 years, and 3.1% were over the age of 65 years.

Table 2. Projected Percentage Increase in US and Regional Demand for Respiratory Therapists 2018-2028

<table>
<thead>
<tr>
<th>Area</th>
<th>Base</th>
<th>Projected Need Total</th>
<th>Change(#)</th>
<th>Change (%)</th>
<th>Average Annual Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>134,000</td>
<td>162,000</td>
<td>28,000</td>
<td>20.9</td>
<td>10,600</td>
</tr>
<tr>
<td>Nebraska</td>
<td>1,220</td>
<td>1,320</td>
<td>100</td>
<td>8.2*</td>
<td>80</td>
</tr>
<tr>
<td>Colorado</td>
<td>2,140</td>
<td>2,970</td>
<td>830</td>
<td>38.8</td>
<td>220</td>
</tr>
<tr>
<td>Iowa</td>
<td>960</td>
<td>1,180</td>
<td>220</td>
<td>22.9</td>
<td>80</td>
</tr>
<tr>
<td>Kansas</td>
<td>1,320</td>
<td>1,580</td>
<td>260</td>
<td>19.7</td>
<td>100</td>
</tr>
<tr>
<td>Missouri</td>
<td>3,350</td>
<td>4,310</td>
<td>960</td>
<td>28.7</td>
<td>300</td>
</tr>
<tr>
<td>South Dakota</td>
<td>340</td>
<td>430</td>
<td>90</td>
<td>26.5</td>
<td>30</td>
</tr>
<tr>
<td>Wyoming</td>
<td>210</td>
<td>260</td>
<td>50</td>
<td>23.8</td>
<td>20</td>
</tr>
<tr>
<td>Total Regional</td>
<td>9,540</td>
<td>12,050</td>
<td>2,510</td>
<td></td>
<td>830</td>
</tr>
</tbody>
</table>

* A 2018 Nebraska Workforce Report supported by the Nebraska Hospital Association indicated a 13.5% projected increase for respiratory therapists in Nebraska for the decade 2014-2024.

The COVID-19 pandemic has dramatically increased the need for respiratory therapists in the Omaha community and at UNMC’s clinical partner, Nebraska Medicine. Currently, Nebraska Medicine (including Bellevue Medical Center) employs approximately 150 respiratory therapists across multiple departments. Additionally, Children’s Hospital and Medical Center employs approximately 80 respiratory therapists. Vacancy rates at Nebraska Medicine are consistently in the
10%-20% range, with turnover at approximately 10%-15%. As a result, Nebraska Medicine and other Omaha metro health systems have implemented employment strategies such as offering incentive pay, sign-on bonuses or educational support, requiring mandatory overtime, or utilizing contract services. Filling vacancies is a more acute problem for departments or health systems that require respiratory therapists with specialized experience and training (e.g., Children’s Hospital and Medical Center that requires pediatric and newborn experience, or the Nebraska Medicine Department of Pulmonary, Sleep, and Surgical Services).

Given the high demand, high volume, high acuity environment of a tertiary/quaternary academic medical center, to maintain respiratory care services, on average Nebraska Medicine relies on 5-10 respiratory therapists on contract at any given time. Even an intermittent reliance on contract support can be especially costly. Generally, the cost of a contract respiratory therapist ranges from $60-$68/hour. During the peak of the pandemic the rate jumped to $110-140/hour. For general comparative purposes, the 2019 national median annual salary for respiratory therapists was $61,330. Based on this median salary and a benefits factor of 25%, the annualized cost for a 1.0 FTE respiratory therapist would be approximately $77,000 (approximately $37/hour.)

While it might be anticipated that the acute need for respiratory therapy services will diminish as the U.S. begins to emerge from the pandemic, the long-term respiratory-related sequela of patients recovering from moderate to severe forms of the disease will likely keep respiratory therapy care demand above pre-pandemic levels. In addition, according to the CDC National Center for Health Statistics, and the American Lung Association, even before the pandemic (2018) chronic lower respiratory diseases (formerly known as chronic obstructive pulmonary disease) as a category was the fourth leading cause of death in all ages in the U.S., behind heart disease, cancer, and accidents and unintentional injuries (thus, the third leading cause of disease-related death).

The 2018 prevalence of CLRD was 6.3% in Nebraska and ranged from a low of 4.6% (South Dakota) to a high of 9.1% (Missouri) in the six contiguous states. In real numbers, over one million (1,067,500) individuals in Nebraska and its six contiguous states were living with chronic lower respiratory diseases in 2018.

E. Avoidance of Unnecessary Duplication

As noted in Table 1, there are eight respiratory care master-level programs in the U.S., only five of which are entry-to-practice. There are no other programs in respiratory therapy within the University of Nebraska system, and no other master’s degree programs in respiratory care of any type in the State of Nebraska. According to the CoARC website there are three entries into the profession associate degree programs in respiratory care in Nebraska (Southeast and Metropolitan Community Colleges, and Nebraska Methodist College). There is also one bachelor’s level degree advancement program (Nebraska Methodist College).

There are a total of 32 entry-to-practice respiratory care programs in Nebraska and the contiguous states (see Table 3). Only two of those programs are at the bachelor degree level, and none are at the master’s degree level (see Figure 1). There were just over 1,000 applicants to these programs in 2019, with an overall acceptance rate of just over 50 percent (50.7%). The programs graduated 430 total graduates in 2019, representing approximately 52 percent of the projected average annual openings in the region (see Table 2).

The CAHP has for many years offered online degree-advancement programs in clinical perfusion, medical laboratory science, physician assistant studies, and radiography. While these degree programs do not increase the number of personnel in these respective fields, they do afford current practitioners the opportunity to maintain employment in their communities while acquiring advanced knowledge. Given the CAHP’s experience and success in offering degree advancement programs, and considering that no master’s degree programs are currently offered in Nebraska or the contiguous states, following the accreditation and implementation of the base entry-to-practice master’s degree, the CAHP will seek subsequent accreditation for a master’s degree advancement program.
Table 3. 2019 CoARC Data for Entry Respiratory Care Programs for Nebraska and Contiguous States³

<table>
<thead>
<tr>
<th>State</th>
<th>Entry RC Programs (n) &amp; Type</th>
<th>Applications</th>
<th>New Enrollees</th>
<th>Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado</td>
<td>4 Associate</td>
<td>262</td>
<td>111</td>
<td>103</td>
</tr>
<tr>
<td>Iowa</td>
<td>6 Associate</td>
<td>212</td>
<td>70</td>
<td>52</td>
</tr>
<tr>
<td>Kansas</td>
<td>8 Associate; 1 Baccalaureate</td>
<td>237</td>
<td>121</td>
<td>82</td>
</tr>
<tr>
<td>Missouri</td>
<td>6 Associate; 1 Baccalaureate</td>
<td>170</td>
<td>119</td>
<td>132</td>
</tr>
<tr>
<td>Nebraska</td>
<td>3 Associate</td>
<td>76</td>
<td>58</td>
<td>41</td>
</tr>
<tr>
<td>South Dakota</td>
<td>2 Associate</td>
<td>32</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Wyoming</td>
<td>1 Associate</td>
<td>12</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>32</strong></td>
<td><strong>1,001</strong></td>
<td><strong>430</strong></td>
</tr>
</tbody>
</table>

Figure 1. CoARC Accredited Entry into Practice Baccalaureate and Graduate Degree Programs (n=75 as of 12/31/20)³

F. Adequacy of Resources

Faculty and Staff Resources

The budget for the proposed program (see Tables 3 and 4), including FTE devoted to personnel, is based on a projected enrollment of 24 students per year for a total ongoing enrollment of 48 students upon full implementation. CoARC accreditation standards require all programs have FTE devoted to “key program personnel,”¹⁴, pp.11-12 which include at a minimum, a 1.0 FTE program director, and a 1.0 FTE director of clinical education. CoARC accreditation standards also require an appointed medical director, although the medical director is not required to have a full-time appointment. A medical director for the program must be a licensed physician board certified in a “specialty relevant to respiratory care.” The medical director will be provided in-kind from Nebraska Medicine.

In addition to these formally titled roles, two additional 1.0 FTE instructional faculty will be hired to teach in the program. Lastly, CoARC accreditation standards require, “sufficient administrative and clerical support staff to enable the program to meet its goals and objectives...”¹⁴, p. 21 The CAHP currently organizes administrative personnel in one of four offices, designed to provide comprehensive services to all students and faculty within the CAHP. These offices include academic affairs, business affairs, enrollment management and student affairs, and research affairs. Existing personnel in these offices will be available to provide administrative support for the Respiratory Therapy Program. Clerical support within the CAHP is provided via a shared service model. An additional 1.0 FTE for dedicated administrative support will be budgeted for support of the Respiratory Therapy Program.

The development of the curricular design and content will be the responsibility of the Respiratory Therapy Program faculty, however as noted above, the CAHP currently has several approved courses at the graduate/professional level related to content on leadership, management, education, and research, as well as professional (competency-based) courses in existing programs (e.g., Clinical Perfusion, Physician Assistant) that could meet the knowledge and competency needs of students in the Respiratory Therapy Program.
Physical Resources
UNMC and the CAHP will identify and renovate as necessary, space on the UNMC Omaha campus to house the respiratory therapy program, including office space for the program director, director of clinical education, and faculty, as well as student work area/small group meeting space. These areas will have internet access, conference room space and equipment for distance learning, conference calls, and video conferencing. Resources are also presently available in Bennett Hall, Wittson Hall, the Michael F. Sorrell Center for Health Sciences Education, and Nebraska Medicine that will be accessible to the respiratory therapy program. New and existing offices and conference rooms will be conducive to work associated with planning, scholarly activities, and student counseling.

Didactic classes will be held in the state-of-the-art classrooms and laboratories in Bennett Hall, or the Michael F. Sorrell Center for Health Science Education on the Omaha campus. These facilities also provide ample student interaction space. The CAHP has research laboratories, classrooms, and graduate student offices in the Center for Healthy Living, as well as laboratory space in Wittson Hall and Bennett Hall on the UNMC Omaha campus.

Instructional Equipment and Information/Technological Resources
In recent years, the CAHP has made significant investments in technology to support the growing demand for distance education, to facilitate curriculum revision, including “flipped classroom” and hybrid delivery models, and to provide students opportunities for hands-on learning through simulation training. Audio visual (AV) and information technology (IT) components in excess of $875,000 have been purchased and installed in Bennett Hall, Wittson Hall, and the Michael F. Sorrell Center for Health Science Education.

The UNMC Office of Academic Affairs houses the E-Gallery, an ever-expanding library of e-Learning modules, available to students anytime and anywhere. In addition, with the opening of the Davis Global Center in October 2020, the new Respiratory Therapy Program students will have access to considerable instructional resources using simulation, and virtual and augmented reality for learning and acquiring complex clinical competencies. In addition, the budget for the development of the program includes the purchase of specialized equipment required for hands-on laboratory education.

As an Academic Health Sciences Center, UNMC offers many educational opportunities and advantages for students. Students have access to the Leon S. McGoogan Health Sciences Library, one of the nation’s premier health science libraries. The Leon S. McGoogan Health Sciences Library serves the information needs of all UNMC students, faculty, and staff. In addition to resources physically located on the Omaha campus, the library has over 5,500 full-text, online journals and over 150 on-line textbooks. All UNMC students have complete access to the library and other online resources. The Leon S. McGoogan Health Sciences Library also provides services to students including how to search for literature, locate articles and books, search the internet, note copyright restrictions, cite sources, and avoid plagiarism, as well as writing assistance.

Clinical Education Resources
As is true of all health profession education programs, the availability of clinical placements will be key to the success of the program. The CAHP has a long history of partnerships with state, regional, and national health care systems and providers, whose clinical sites support the clinical training of allied health students. The CAHP has strong relationship with its clinical partners Nebraska Medicine and Children’s Hospital and Medical Center, which will form the foundation for clinical education experiences for students in the Respiratory Therapy Program.

While the primary clinical partners for the program will be the respiratory therapy services at Nebraska Medicine and Children’s Hospital and Medical Center, the CAHP also has as existing network of over 400 affiliation agreements with healthcare facilities and providers, most external to UNMC. Of these agreements, over 300 are “blanket” agreements which support clinical education for students from multiple health professions programs (143 of which are with healthcare institutions in Nebraska). Many of these sites are located in rural communities throughout Nebraska. Given that an essential mission of the CAHP is to educate the highest-quality allied health workforce to serve the State of Nebraska, it is anticipated that respiratory therapy students will also participate in clinical education experiences at many community and regional hospitals throughout Nebraska.
CoARC accreditation standards require the hiring a 1.0 FTE Clinical Education Director, whose primary role will be to develop a network of clinical education placements for the program. Additionally, CoARC accreditation standards require the appointment of a Program Advisory Committee (PAC). The PAC provides general oversight and guidance for the program, and membership on the PAC is voluntary. Members will be solicited from community stakeholders, largely Nebraska Medicine and Children’s Hospital and Medical Center (see Appendix C for letters of support from these institutions).

G. Budget
The expense and revenue projections for the Respiratory Therapy Program are modeled in the attached tables. The program will require an investment of approximately $1.2M over a three-year implementation phase, with a first cohort projected to matriculate in the fall of academic year 2023-24. Funds from CAHP/Campus auxiliary activities are available to meet this need (see Appendix D). The revenue projection is modeled on enrollment of a cohort of 20 students in year one (16 resident and 4 non-resident) and cohorts of 24 students thereafter (18 resident and six non-resident students). Tuition will be “flat rate” based on a per-credit hour cost similar to the Masters of Perfusion Studies degree currently offered by the CAHP. The program is projected to generate revenue in excess of expenses in FY 2025, resulting in recovery of the initial investment in FY 2037. Ongoing annual revenue in excess of expenses is projected to be approximately $126K thereafter.

The projected expense budget includes one-time expenses for equipment and technology acquisition, potential building renovations and faculty recruitment. These expenses are projected over the first three-years after program approval. On-going expenses include faculty and staff salaries and benefits, and routine operating expenses for faculty development, general supplies, accreditation fees, program marketing, etc. All expenses are inflated at 2.5% per year.

Tuition projections are based on the current resident and non-resident tuition for the Clinical Perfusion Master’s degree program, inflated at 2.5% after the current tuition freeze expires. The projected resident per credit hour rate is $367 and the non-resident rate is $965, for the 82-credit hour program. Congruent with all CAHP programs, the Master of Respiratory Care will be billed in a flat rate model of $30,337 for the first resident cohort and $79,781 for the first non-resident cohort. On average, the CAHP remissions rate is 9% for resident students and 42% for non-resident students enrolled in similar master’s degree programs.

IV. Conclusion

The College of Allied Health Professions (CAHP) at the University of Nebraska Medical Center (UNMC) proposes to establish the first in Nebraska entry-to-practice master of respiratory care degree program, allowing students to complete their bachelor’s degree and obtain a master of respiratory care degree in five-years.

The program would help to meet a projected 19% increase in national demand for respiratory therapists, including 830 annual openings for respiratory therapists in Nebraska and its six contiguous states. The development of the program is congruent with many of the strategic goals and objectives of the UNMC and University of Nebraska Strategic Plans, as well as the Comprehensive Statewide Plan of the Nebraska Coordinating Commission for Postsecondary Education. Budget modeling indicates that in approximately year six of the program and thereafter, the program would be a self-sustaining revenue center for UNMC and the CAHP.

As noted by the consultant who assisted in conducting the feasibility study that informed this proposal,

The University of Nebraska Medical Center (UNMC) provides sophisticated, state-of-the-art care to patients with acute and chronic illness. Nebraska Medicine provides a unique venue for training advanced level respiratory therapists and a respiratory therapist training program within the College of Allied Health Professions (CAHP) could rapidly develop into a nationally recognized program of excellence.
References


Appendix A
Consultant Report

University Nebraska Medical Center
College of Allied Health Professions

Feasibility of the Establishment of a Respiratory Care Educational Program at the University Nebraska Medical Center

Report of Consultation Visit
David C. Shelledy, PhD, RRT, FAARC, FASAHP
February 11 and 12th, 2020
Executive Summary

Respiratory care is the allied health discipline focused on the evaluation, treatment, and care of patients with heart and lung disorders. Respiratory therapists work across multiple healthcare venues including acute care hospitals, long-term care facilities, sleep disorder centers, physician offices, skilled nursing facilities and rehabilitation centers. Patients commonly requiring respiratory care include those patients with acute pulmonary disease (acute respiratory tract infection, pneumonia, pulmonary edema, acute respiratory distress syndrome [ARDS], and other causes of respiratory failure) and those with chronic lung disease (COPD, asthma, cystic fibrosis, pulmonary fibrosis). Respiratory therapists are the primary allied health personnel responsible for the institution, adjustment, monitoring, and care of patients receiving mechanical ventilatory support, including invasive mechanical ventilation. Within the hospital environment, respiratory therapists devote a great deal of their time caring for critically ill patients requiring intensive care. Respiratory therapists also perform diagnostic studies (e.g., arterial blood gases, pulmonary function testing, exercise testing, sleep laboratory), providing patient education (e.g., smoking cessation, asthma education, COPD chronic care and rehabilitation), as well as providing long-term care for patients with chronic illness.

Respiratory therapists (RTs) are trained at colleges and universities and respiratory care educational programs require specialized accreditation. The National Board for Respiratory Care administers the examinations for respiratory therapist credentialing and provides the credentialing system used for state licensure. Credentials awarded include the registered respiratory therapist (RRT) credential and specialization credentials in adult critical care, neonatal and pediatric critical care, pulmonary function testing, and sleep studies. The U.S. Bureau of Labor Statistics estimates a need for an additional 10,600 respiratory therapists per year for the period 2018-2028.

In the past, the majority of respiratory therapy education programs awarded an associate degree. Effective in 2018, all new respiratory therapist educational programs must offer a bachelors or master’s degree and the American Association for Respiratory Care has stated that all respiratory therapists should hold minimum of a baccalaureate degree by the year 2030.

The University of Nebraska Medical Center (UNMC) provides sophisticated, state-of-the-art care to patients with acute and chronic illness. Nebraska Medicine provides a unique venue for training advanced level respiratory therapists and a respiratory therapist training program within the College of Allied Health Professions (CAHP) could rapidly develop into a nationally recognized program of excellence.

Given the high level of care provided by UNMC and Nebraska Medicine, it is recommended that the CAHP initiate a new entry-to-practice respiratory therapist educational program awarding the master of respiratory care degree upon completion. This program should focus on preparing outstanding respiratory care clinicians able to care for the difficult and complex patients seen by the medical center. The curriculum should include advanced coursework in the areas of patient assessment; protocol development and administration; care plan development, initiation, delivery, modification, and evaluation; critical care and mechanical ventilatory support (adult, pediatric, neonatal and specialty); and cardiopulmonary diagnostics. While the primary focus of the program should be on the preparation of outstanding clinical (bedside) advanced level respiratory therapists, courses and units of instruction should also be included in the areas of leadership, research and education.
Introduction
Respiratory Care has been defined as the healthcare discipline that specializes in the promotion of optimum cardiopulmonary function and health. Respiratory therapists employ scientific principles to identify, treat and prevent acute or chronic dysfunction of the cardiopulmonary system. Respiratory therapists are employed across all healthcare delivery venues including acute care hospitals, subacute care, skilled nursing facilities, long-term acute care facilities, physicians’ offices and clinics, rehabilitation facilities and homecare. Respiratory therapists also provide diagnostic services in pulmonary function laboratories and sleep disorder centers. They are involved in research, and may find employment at universities, research institutes and with industry, medical equipment companies and suppliers, and governmental agencies. Respiratory therapists are also employed as faculty members within respiratory care educational programs located at colleges and universities. Specialty areas within respiratory care include adult critical care, pediatric and neonatal critical care, cardiopulmonary rehabilitation, cardiopulmonary diagnostics (e.g., pulmonary function testing, sleep studies, cardiopulmonary exercise testing, metabolic testing), patient transport (e.g., emergency and critical care air transport), and home care.

Respiratory therapists are trained and educated at colleges and universities accredited by the Commission on Accreditation for Respiratory Care (see: www.CoARC.com). Effective January 1, 2018 all new entry-to-practice respiratory care educational programs must award either the baccalaureate or graduate (e.g. master’s) degree upon completion of the program. Associate degree programs that applied for accreditation or were accredited prior to January 1, 2018 may continue to award graduates the associate degree as long as they continue to remain accredited by the CoARC. Currently there are approximately 344 associate degree programs, 71 baccalaureate degree programs and 15 master’s degree respiratory care programs (10 post-professional master’s and 5 entry-to-practice masters) in the U.S (Appendix C).

Purpose of the Consultation
The purpose of this consultation was to determine the feasibility of the establishment of a baccalaureate and/or master’s degree program in respiratory care within the College of Allied Health Professions at the University Nebraska Medical Center. Specifically, this report details findings related to the following activities:

1. Survey demand, need, support, and facilities with respect to the establishment of a respiratory care educational program.
2. Meet with key stakeholders to determine interest and support in establishment of a respiratory care educational program.
3. Determine viability and initial startup needs for a new program in respiratory care.

Additional background information related to the development of new respiratory care educational programs should be considered. Although many associate degree programs remain in operation, current accreditation standards require that all new entry-to-practice respiratory care programs must be offered at the baccalaureate or master’s degree level. In addition, the American Association for Respiratory Care (AARC) recently published a position statement that all respiratory therapists should hold at least a bachelor’s degree in respiratory care by the year 2030. There are also a number of respiratory care curricular models in operation in the United States. Broadly speaking, these can be divided into entry-to-practice respiratory therapist training programs offered both at the baccalaureate and master’s degree level and programs for current respiratory therapists to advance their career.

The most common model for entry-to-practice programs is the traditional 2+2 baccalaureate degree (two years of undergraduate general education and prerequisite courses followed by two years of professional/health sciences courses). Entry-to-practice master’s degree programs generally require no prior health care experience; however, applicants must have a non-RT bachelor’s degree and appropriate prerequisite courses (e.g., biology, chemistry, anatomy, physiology). Programs designed for current respiratory therapists to advance their careers include degree completion baccalaureate programs (to provide associate degree program graduates the opportunity to complete their baccalaureate degree in respiratory care); and master’s degree completion programs for current registered respiratory therapists (RRT’s) holding non-RT baccalaureate degrees. Accreditation standards for advanced practice respiratory therapist (APRT) training programs have also been developed and such programs should provide current respiratory therapists with the clinical skills needed to serve in mid-level provider roles similar to a pulmonary physician assistant.
Currently, there is only one such accredited program in the U.S. (see: https://gpadmissions.osu.edu/programs/program.aspx?prog=0269).

Methodology
An on-site visit was conducted February 12-14, 2020 at which time key stakeholders were interviewed, and clinical and academic facilities reviewed. A summary of activities is found in Appendix D. In addition, U.S. Bureau of Labor Statistics and Nebraska Department of Labor employment projections were obtained and the current number of baccalaureate and graduate respiratory therapy educational programs reviewed (see: Commission on Accreditation for Respiratory Therapy Education Annual Report and the Coalition for Baccalaureate and Graduate Respiratory Therapy Education database; www.CoARC.com and www.CoBRTE.org).

Results

Facilities and Support
The University Nebraska Medical Center (UNMC) is a world-class academic health center with the main campus located in Omaha, Nebraska. The stated mission of UNMC and Nebraska Medicine (UNMC’s hospital partner) is to “lead the world in transforming lives to create a healthy future for all individuals and communities through premier educational programs, innovative research and extraordinary patient care.” The major mission components of UNMC include teaching, research, service, and patient care. In collaboration with Nebraska Medicine, UNMC provides clinical services in about 50 specialties and subspecialties, including cancer, neurosciences, heart disease and others.

UNMC is comprised of six colleges and multiple institutes and centers. UNMC offers professional training programs in dentistry, medicine, nursing, pharmacy, public health, and allied health as well as research focused masters and doctoral degree programs in the biomedical sciences. Nebraska Medicine includes the Nebraska Medical Center, the Fred and Pamela Buffett Cancer Center, Bellevue Medical Center, and Village Point Health Center. Nebraska Medical Center is a 718-bed tertiary-care referral hospital caring for complex patients from across the region and nation while Bellevue Medical Center adds additional inpatient beds, intensive care services and emergency department services.

The proposed respiratory care program would be offered by the College of Allied Health Professions at UNMC. The mission of the College of Allied Health Professions (CAHP) is to advance health by delivering allied health educational programs that prepare graduates to “provide high quality, evidence-based, safe care for all patients; conducting scholarly activities that create and disseminate knowledge reflective of the unique contributions of allied health theory and practice; providing high quality, contemporary clinical care in the allied health disciplines; and providing outreach to underserved populations. The College of Allied Health Professions at UNMC offers training and education in 14 different allied health disciplines ranging from cardiovascular interventional technology to medical radiography (see: https://www.unmc.edu/alliedhealth/education/index.html).

UNMC and Nebraska Medicine are well positioned to provide the clinical training and related experiences needed to prepare outstanding advanced level respiratory therapists. An important focus for training advanced level respiratory therapists is the availability of critical care beds, personnel and procedures. Nebraska Medicine features a sophisticated group of ICUs including CVICU (cardiovascular), NSICU (neuroscience), SICU (surgical), MICU (medical), NICU (neonatal), PICU (pediatric) and Buffett ICU (oncology). Nebraska Medicine is a Level I trauma center (which includes a burn intensive care unit) and a Level IV Newborn Intensive Care Unit is located at Children's Hospital and Medical Center, providing the most sophisticated, state-of-the-art care possible for trauma and neonatal patients, respectively. Units are staffed with expert critical care physicians, advanced practice nurses, and respiratory therapists.

Critical care training opportunities and procedures abound across multiple care venues providing airway care, mechanical ventilatory support, hemodynamic monitoring, extracorporeal membrane oxygenation (ECMO), mechanical circulatory support, and perfusion services. Other core training opportunities readily available include provision of respiratory care in the acute care setting (e.g., oxygen therapy, aerosolized medication delivery, airway clearance techniques, patient assessment and care planning, asthma education), emergency care (e.g., CPR and advanced life support), cardiopulmonary diagnostics and pulmonary function laboratory, sleep laboratory, pulmonary rehabilitation, cardiac rehabilitation, hyperbaric medicine, cardiac catheterization lab and critical care ground and air transport. In
addition to the availability of advanced level care, students may have opportunities to participate in sophisticated outcomes/clinical research related to respiratory care.

Respiratory care clinical leadership personnel, including therapists and physicians are enthusiastic and well qualified to ensure that students receive an outstanding clinical education. Nebraska Medicine patient care operations leadership are also supportive and eager to have a ready source of well-qualified respiratory therapists to meet the medical center’s workforce needs.

The College of Allied Health Professions is well positioned to support advanced level respiratory therapist training. The college is led by a sophisticated team of academicians including the dean, associate deans, department chairs, program directors, and administrative staff. The college has extensive experience in providing outstanding allied health graduate and undergraduate training programs, as well as appropriate classroom, teaching laboratory, offices, and related support resources. It’s clear that should UNMC decide to develop and implement an advanced level respiratory therapist training and education program, they have the resources and experience to develop an outstanding program.

College administrative leadership (e.g. deans, associate deans, department chairs, program directors) are very supportive of the development of a respiratory therapist program with the aim of developing a program which will be recognized as a national leader within a few years. Clinical training opportunities and associated resources will certainly allow for the achievement of such a goal, assuming continued administrative support and successful employment of a visionary and capable program director and faculty. There seems to be a clear mission match between the university, college and proposed new program.

**Workforce**

Nebraska Department of Labor occupational data indicated that in 2019 there were approximately 1,213 respiratory therapists employed in the state. Median annual wage for respiratory therapists in Nebraska is listed at $57,407 and there are currently only 18 candidates available for 79 job openings (see: [https://newworks.nebraska.gov/vosnet/Default.aspx](https://newworks.nebraska.gov/vosnet/Default.aspx)). U.S Bureau of Labor Statistics estimated that there were 134,000 respiratory therapists in the U.S. in 2018 and that number would grow to 162,000 by 2028 with an average annual opening rate of 10,600 openings (see: [https://www.bls.gov/emp/tables/emp-by-detailed-occupation.htm](https://www.bls.gov/emp/tables/emp-by-detailed-occupation.htm)).

Nebraska Medical Center hospital leadership is fully supportive of the development of a new respiratory therapist training program because of workforce shortages and excessive PRN use and related cost. It was felt that the program should train advanced level respiratory therapists who possess additional assessment skills, allowing for administration of protocols (e.g., ventilator weaning, extubation, reduction of therapy misallocation), and contribute to reduction in hospital readmissions following discharge (e.g., asthma, COPD, other). In addition, there’s a desire to continue to improve employee engagement and enhance recruitment and retention of respiratory care personnel.

As noted above, current accreditation standards require that all new entry-to-practice respiratory therapist training programs must be at the baccalaureate or master’s level. Currently there are 71 accredited bachelor’s degree programs and five entry to practice master’s degree programs in the U.S., however, only one program in Nebraska offers an entry-to-practice bachelor’s degree (CHI Health/Midland University) and there are currently no graduate-level programs in the state.

Consequently, the majority of the current Nebraska workforce received their training at one of the three associate degree programs in the state. Credit hour limitations of associate degree respiratory therapist training programs limit the breadth and depth of training possible needed to provide advanced patient care management skills for practice. Also as noted, the American Association for Respiratory Care has taken the position that all respiratory therapists should have a minimum of a respiratory care baccalaureate degree by 2030.

**Challenges**

Challenges to implementing a new program to train respiratory therapists at UNMC include recruiting well-qualified key personnel and instructional faculty, establishing an appropriate teaching laboratory, ensuring the program is financially sound and adequate financial resources are available, maintaining program enrollment, ensuring adequate clinical
placements for students, and choosing a curricular model which is a good fit for the University Nebraska Medical Center and the College of Allied Health Professions.

**Key personnel.** An entry-to-practice master’s degree respiratory therapist training program would provide the best fit for an academic medical center such as UNMC. In order to achieve specialized accreditation, the program must have a qualified program director, director of clinical education, and medical director as well as sufficient instructional faculty to provide effective instruction in the didactic, laboratory, and clinical setting. The program director and director clinical education must be full-time, core faculty. The medical director is not required to have a full-time appointment within the program.

Finding doctorally prepared respiratory care faculty to provide program leadership and instruction can be challenging. Because of the shortage of doctorally prepared respiratory therapists to teach, the specialized accreditation agency (CoARC) currently states that the program director and director of clinical education “of a program offering a bachelor’s or master’s degree must have earned at least a master’s degree from an academic institution accredited by a regional or national accrediting agency recognized by the U.S. Department of Education (USDE).” Use of master’s level faculty to teach and provide program leadership will require documentation of preparation for teaching subject matter assigned in order to meet regional accreditation (HLC) standards.

**Instructional Faculty.** The program must demonstrate that instructional faculty are qualified in the content areas they are teaching and have demonstrated a sufficient level of knowledge, skills, and competency in those content areas, as well as being appropriately credentialed. (see: [https://www.coarc.com/News-and-Events/CoARC-Entry-Standards-7-1-2020.aspx](https://www.coarc.com/News-and-Events/CoARC-Entry-Standards-7-1-2020.aspx)). There should be little difficulty in identifying highly qualified instructional faculty from the many physicians, advanced practice providers, and respiratory therapists currently employed at the medical center.

**Teaching Laboratory.** Access to a teaching laboratory properly equipped for student practice and demonstration of clinical skills will be required for an entry-to-practice program. This should include sufficient equipment and supplies for students to demonstrate core respiratory care clinical skills in the teaching laboratory. The teaching laboratory should include access to simulation models and equipment and supplies to deliver oxygen therapy, aerosol and humidity therapy, airway care, endotracheal intubation, arterial blood gas sampling, arterial line set-up, cardiac and hemodynamic monitoring, and invasive and noninvasive mechanical ventilation. Equipment used in the teaching laboratory for high ticket items (e.g. ventilators) can be rented or leased, but needs to be available to the students when that portion of the curriculum is covered. Students should also have access to cardiopulmonary diagnostic equipment and supplies in order to practice procedures such as pulmonary function testing on volunteers prior to practice on patients.

**Financial Resources.** The program should be able to self-fund through tuition, fees and state support provided. In some state systems, support is based on the discipline (e.g., health sciences), student semester credit hours taught and/or full-time student equivalents enrolled. It was unclear how state support is apportioned at UNMC, however, tuition and fees must be set appropriately in order to fully fund the program. Hospital financial support may be required, particularly in the area of allowing clinical personnel to serve as clinical preceptors and instructors. Properly structured clinical rotations, however, can allow the clinical preceptor and his or her assigned students to perform (on average) about the same patient care workload as a respiratory therapist without students.

**Maintaining Enrollment.** Respiratory care is not as well-known as a career option as certain other allied health professions (e.g., physical therapy, occupational therapy, physician assistant) and marketing and student recruitment can be challenging. Structurally, a baccalaureate entry-to-practice respiratory care program located in a freestanding academic health center such as UNMC will require students to attend the first two years of college somewhere else and then transfer to UNMC. Students attending residential four-year colleges and universities are often reluctant to transfer to a different school for their third and fourth years, and this may impact applicant pool size should a traditional baccalaureate model be adopted.

On the other hand, there is generally a very large population of undergraduate students who plan to complete their bachelor’s degree in an area such as biology or pre-medicine in preparation for application to a graduate level
professional degree program such as medicine or physician assistant studies, and there are generally many more well-qualified applicants to these programs than seats available. For example, both Rush University Medical Center in Chicago and UT Health San Antonio offer entry-to-practice MS degree respiratory therapist training programs. They have found that it is easier to recruit highly qualified students to these MS degree programs than their BS degree programs which require students transfer at the end of their sophomore year. Consequently, well-qualified applicants to the PA programs as well as lists of Graduate Record Exam (GRE) completers interested in the health professions provide an excellent source of prospective students for their graduate programs. Ongoing marketing and student recruitment, however, will be essential to ensure the viability of an entry-to-practice respiratory care educational program at UNMC.

Initial cohort size will largely be dependent on availability of clinical faculty and clinical placements. Suggested initial enrollment of 12 to 15 students is a common starting point then increasing to an enrollment of approximately 24 students per year. Some entry-to-practice programs, however, are much larger (e.g., 50 students per cohort and some degree completion programs accommodate 100 or more students).

**Clinical Placements.** Depending on class size, clinical training placements can be challenging for an entry-to-practice respiratory care program. Strong hospital support, as well as structuring the curriculum so that the second year allows for clinical rotations outside of Omaha can facilitate clinical placements. For example, programs which focus on intensive clinical training for the last year of student training often require students to complete “out-of-town” clinical rotations at clinical sites located in other cities and states. Programs that require out-of-town clinical rotations generally expect students to self-fund and they provide this information to prospective students prior to enrollment.

**Program Curricular Model.** A number of different curricular models for respiratory therapist education have been implemented at various colleges and universities across the U.S. as described below.

1. **Traditional Baccalaureate Degree Program.** A baccalaureate degree program using a 2+2 model (two years of lower division undergraduate general education and science coursework followed by two years of respiratory care/health sciences coursework) is commonly employed. Such a model has limitations including recruitment and retention of highly qualified students when a transfer to a new institution is required between the sophomore and junior years and limitations on the scope and depth of training that can be provided in the last two years of such a baccalaureate program due to credit hour restrictions.

2. **Dual Track Baccalaureate and Master’s Degree Programs.** As an alternative to a traditional 2+2 bachelor’s degree model, some programs (e.g., Rush University Medical Center/Rush University, UT Health San Antonio, and Georgia State University) have opted to offer dual-track BS/MS entry-to-practice respiratory care programs. Core courses which deliver the entry-to-practice competencies required for students in both tracks are double numbered. While core competencies taught are the same, standards of progress for MS degree students and a graduate competency assignment are required for each course. In addition, MS degree program students complete additional coursework in the areas of research, education, leadership, and advanced clinical practice (e.g., neonatal/pediatrics – NICU/PICU, pulmonary diagnostics, adult critical care, pulmonary rehabilitation, etc.). This design provides an efficient model for delivering the core competencies to both groups at the same time. This model also provides an opportunity for students who have not completed a bachelor’s degree to enter the field at the undergraduate level and also allows students with an associate degree in respiratory care a pathway to obtain a bachelor’s degree in respiratory care. It’s important to note that the master’s degree entry-to-practice program does not require that applicants have prior healthcare experience, thus ensuring a large pool of prospective applicants. A dual-track model, however, is more complex to administer, and requires that the institution identify one of the two programs as the base program and the other as an “additional degree track” for accreditation purposes. It is interesting to note that Rush University Medical Center/Rush University no longer offers the BS degree track, as they have found the MS degree entry-to-practice program better meets their needs as an academic medical center.

3. **Baccalaureate Degree Program and Advanced Practice Masters.** The third option is to offer a traditional 2+2 bachelor’s degree program and a separate advanced level master’s program. The bachelors program provides core competencies required for licensure and certification, while the master’s degree program may provide
advanced clinical competencies or focus on leadership competencies (e.g. management, education, research). Some programs have found this to be a good option, however the advanced practice master’s requires that students entering have completed an entry-level respiratory care program which seriously limits the potential applicant pool. It should also be noted that such programs do not add to the total workforce because they require entering students to already hold the registered respiratory therapist credential. However, some institutions (e.g., the Ohio State University) have chosen to supplement their traditional 2+2 baccalaureate respiratory care program with an advanced practice respiratory therapist (APRT) program to prepare mid-level providers. Such an approach requires significant additional resources and separate accreditation approval (see: https://www.coarc.com/Accreditation/Advanced-Practice-Standards.aspx).

4. Entry-to-Practice Master’s Degree Program. The last option to consider is a stand-alone entry-to-practice master’s degree program. I believe such a program is the best fit for UNMC based on the advanced scope of practice and clinical expectations of the medical center. A single degree model will be easier to implement and able to recruit outstanding faculty and well-qualified students from a larger pool of potential applicants. Properly designed, such a program will provide an outstanding education to train advanced level respiratory therapists needed to work in a complex academic medical center environment. Additional degree track(s) could be added following successful implementation of the entry-to-practice master’s degree program.

As noted earlier, decision makers should also be aware that many programs have developed degree completion options for currently licensed and credentialed respiratory therapists. Such degree completion programs may be offered at either the baccalaureate or master’s level and provide a good option for current practitioners to obtain additional training and another degree for career advancement; as noted previously, such programs do not add to the total workforce. Degree completion programs may also require separate accreditation (see: https://www.coarc.com/Accreditation/Degree-Advancement-Standards.aspx ). It must also be noted that a degree completion program to enable RRTs to complete their bachelor’s degree is currently available at Nebraska Methodist College in Omaha.

Regardless of the curricular model chosen, CoARC accreditation standards will have to be met and can be challenging in terms of a rapid startup timeline.

Conclusions and Recommendations
The University Nebraska Medical Center and the College of Allied Health Professions provide a strong venue for the development and implementation of a baccalaureate and/or master’s degree program in respiratory care. It is this report’s recommendation that an entry-to-practice master’s degree program be developed to train and educate advanced level respiratory therapists to provide direct patient care. Graduates of such a program will have the patient assessment skills to ensure that patients receive the right care, at the right time and minimize unnecessary care; apply respiratory care protocols (e.g., ventilator management, ventilator weaning, acute asthma and acute exacerbation of COPD management); provide chronic disease management to reduce hospital readmissions (e.g., asthma education, COPD rehabilitation); perform diagnostic testing (e.g., pulmonary function studies, sleep studies, exercise testing) as well as supporting advanced procedures such as ECMO and other rescue therapies for patients in acute respiratory failure. Such a program is needed if the medical center desires to continue to be able to recruit and retain outstanding respiratory therapists trained to provide the advanced level of respiratory care currently demanded.

Hospital leadership is fully supportive of developing a respiratory care educational program in order to address workforce shortages and excessive PRN use and related cost. The program would provide respiratory therapists with advanced assessment skills, allowing for administration of protocols (e.g., ventilator weaning, extubation, reduction of therapy misallocation) which could improve clinical outcomes, improve efficiency, reduce misallocation of care and reduce hospital readmissions following discharge (e.g., asthma, COPD, other chronic lung disease). In addition, there is a desire to continue to improve employee engagement and enhance recruitment and retention of personnel and an advanced level respiratory therapist training program would help address these goals.

The CAHP leadership and academic program support personnel are supportive of introducing a new respiratory care program and possess the infrastructure to manage student recruitment and admissions.
Nebraska Medicine respiratory care clinical services leadership and medical director are fully supportive to include interest in clinical personnel receiving cross appointments as adjunct clinical faculty in support of the educational program. Should UNMC opt to begin a new entry-to-practice master’s degree program, it is highly recommended that Nebraska Medicine’s career ladder for respiratory therapists integrate the achievement of the master’s degree for clinical specialization and advanced practice.

Last, but not least Chancellor Gold is supportive, and this new program provides an opportunity to grow UNMC enrollment as well as providing a career path for students in collaboration with University Nebraska Omaha.

In summary, UNMC has the infrastructure, clinical facilities, and medical personnel to develop and support an excellent entry-to-practice master’s degree respiratory care educational program to prepare outstanding respiratory therapists with a focus on clinical services delivery.
Appendix B
Sample Plan of Study
Used with Permission; Available at: http://catalog.uthscsa.edu/schoolofhealthprofessions/respiratorycare/msrc/entry/entry.pdf

Degree Requirements
To graduate from the Respiratory Care Master of Science in Respiratory Care program, students must:

- Complete all required respiratory care professional courses with a grade of C (75%) or better.
- Must have an overall GPA 3.0 to graduate.
- Successfully complete the self-assessment examinations given by the National Board for Respiratory Care.
- Successfully complete a comprehensive end-of-year and program competency assessment.
- Successfully complete a research project (create and implement an educational project, create and implement a quality improvement plan, or create and implement a research project).
- Complete all University requirements for graduation.

Master of Science in Respiratory Care Sample Plan of Study

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Fall

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Second Year
Fall

<table>
<thead>
<tr>
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<tr>
<td>RESC 6011</td>
<td>Clinical Seminar 1</td>
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<tr>
<td>RESC 6019</td>
<td>Clinical Practice 1</td>
<td>12</td>
</tr>
<tr>
<td>RESC 6030</td>
<td>Research Project 1</td>
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Spring

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<tbody>
<tr>
<td>RESC 6029</td>
<td>Clinical Practice 2</td>
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Summer

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<tr>
<td>RESC 6031</td>
<td>Research Project 2</td>
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<tr>
<td>RESC 6033</td>
<td>Clinical Seminar 2</td>
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<td>RESC 6032</td>
<td>Advanced Patient Assessment and Care Plan Development</td>
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<tr>
<td>RESC 6034</td>
<td>Research Project 3</td>
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<tr>
<td>RESC 6035</td>
<td>Clinical Seminar 3</td>
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</table>

Total Credit Hours: 92.0

Elective Courses
Students may enroll in elective courses with the approval of their division director or department chair.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>RESC 6150</td>
<td>Independent Study</td>
<td>1-6</td>
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<tr>
<td>RESC 6301</td>
<td>Advanced Patient Assessment and Care Plan Development</td>
<td>3</td>
</tr>
<tr>
<td>RESC 6302</td>
<td>Advanced Critical Care and Ventilatory Support</td>
<td>3</td>
</tr>
<tr>
<td>INTD 5064</td>
<td>Applied Statistics for Health Care Practitioners</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses

RESO 3092. Fundamentals of Respiratory Care. 5 Credit Hours.
The course will present the principles of chemistry and physics as they apply to respiratory care. Students will have the opportunity to gain hands-on experience with basic respiratory care equipment. Specific types of therapy are examined to understand the principles of application to patients, indications, hazards, contraindications, select, assemble, and troubleshoot equipment. Equipment will include oxygen delivery services, aerosol generators, medication delivery devices, pressure ventilators, gas delivery, metering and analyzing devices, percursor, positive pressure devices, environmental devices, manometers, gauges, and vacuum systems.

RESO 3095. Respiratory Care Pharmacology. 2 Credit Hours.
This course introduces the physiologic and pharmacologic basis of pulmonary and cardiac medications. Students will study several aspects of the formulation and preparation of the most commonly prescribed respiratory drugs. Pharmacodynamics and pharmacokinetics will be discussed along with drug formulation, drug dosage calculations, indications, contraindications and side effects of cardiac and pulmonary medications. Topics covered include an overview of bronchial agents, anti-inflammatory drugs, anti-asthmatic drugs, antihypertensives, diuretics, cardiac drugs, and drugs that affect the central nervous system.

RESO 3097. Cardiopulmonary Physiology. 5 Credit Hours.
This course provides an in-depth study of cardiac and pulmonary anatomy and physiology, as well as the diagnostic procedures commonly used in the hospital to evaluate these systems. Topics include the function of the respiratory system, ventilatory mechanics, gas transport in the blood, natural and chemical regulation of breathing, circulation, blood flow and pressure, and cardiac output. The heart-lung relationship and clinical applications of these phenomena in the cardiopulmonary system will be emphasized.
March 9th 2021

Kyle P. Meyer, PhD, MS, PT, FASAHP
Dean, College of Allied Health Professions
984000 Nebraska Medical Center
Omaha, NE 68198-4000

Dear Dr. Meyer:

I want to express my strong endorsement for the proposal to develop a master’s level respiratory therapist education program in the UNMC College of Allied Health Professions. The COVID-19 pandemic that we experienced during the last year underscored the essential role that respiratory therapists play as members of the healthcare team. As the complexity of health care increases there is a need for respiratory therapists to manage advanced technology and assume more advanced roles in patient assessment and treatment, and to provide education to younger colleagues.

As the CEO of Nebraska Medicine I receive daily reports on the hundreds of treatments respiratory care professionals deliver each day. Without their commitment, many patients would not have survived.

I appreciate your excellent leadership in allied health and in developing this important program.

Sincerely,

James Linder, MD
Chief Executive Officer
April 1, 2021

Kyle Meyer, PhD
Dean
College of Allied Health Professions
984000 Nebraska Medical Center
Omaha, NE 68198-4000

Dear Dr. Meyer:

We are writing to strongly endorse and support the proposal to develop a master’s entry-level respiratory therapist education program in the UNMC College of Allied Health Professions. As pulmonary & critical care leaders who interact with respiratory therapists daily, we know how essential respiratory therapists are to our healthcare system.

Our pulmonary/critical care/sleep medicine division provides physician leadership to Nebraska Medicine respiratory care services, critical care services, and sleep services. All of these areas are absolutely dependent on respiratory therapists in order to provide high quality and safe care to our patients. In addition, respiratory therapists make valuable educational contributions to the training of our internal medicine residents and pulmonary/critical care fellows. We are very aware of the value of respiratory therapists (RTs) as partners in the care of our patients and equally aware of the difficulty our healthcare system has had in recruiting enough of these professionals. In our intensive care units, it has been very challenging for us in the past 2 years as we have experienced consistent workforce shortages of RTs, requiring the need to pay considerable overtime, as well as hire contract respiratory therapists to meet patient and service demands. This unfilled demand for well-trained RTs was stretched to the breaking point when we were thrown into the COVID-19 pandemic crisis a year ago. During that time, we had our highest ICU admissions and ventilator needs nearly overwhelming our RTs, nurses, physicians and other colleagues. The challenge to support adequate oxygenation in the severely ill COVID-19 patients was met by our best RTs with advanced RT training and long-term ICU experience partnering to manage these patients and it made all the difference in the good outcomes the critical care teams were able to achieve for these patients.

As the respiratory therapy profession continues to evolve, it is clear that well-trained RTs are vital members of the healthcare team. In this context, we strongly endorse the preparation of respiratory therapists at the master’s level. Our division will enthusiastically support this RT training program and will involve the RT students in our existing ICU curriculum as well as at the bedside on ICU rounds. This will also include case-based didactic sessions in tandem with other ICU learners. In addition, we envision there will be opportunities for RT students to be involved in the outpatient care of pulmonary patients in some of our clinics where skilled RTs are very vital, including our cystic fibrosis clinic. Furthermore, we have a busy sleep medicine clinic and there may be RT student learning opportunities there as well.
Thank you for your leadership in developing this much needed program. I look forward to continuing to work with you in support of the development of the RT training program to ensure this vision becomes a reality.

Yours sincerely,

Joe Sisson, MD
Larson Professor and Chief
Division of Pulmonary, Critical Care & Sleep
Department of Internal Medicine

Debra J. Romberger, MD
Chair, Department of Internal Medicine
Lenhoff Professor of Internal Medicine
March 17, 2021

Kyle P. Meyer, PhD, MS, PT, FASAHP  
Dean, College of Allied Health Professions  
984000 Nebraska Medical Center  
Omaha, NE 68198-4000

Dear Dr. Meyer:

I am writing to offer my strong endorsement and support for the proposal to develop a master’s entry-level respiratory therapist education program in the UNMC College of Allied Health Professions. As a critical care physician who interacts with respiratory therapists on our critical care teams, I can attest to both the value of, and the increasing demand for, these highly skilled professionals. Respiratory therapists have always been vital members of the healthcare team taking care of patients with a variety of cardiopulmonary conditions. The pandemic of the past year has brought to light just how important these individuals are in the delivery of high-quality care under difficult conditions.

As Medical Director for Critical Care and Acute Care at UNMC/Nebraska Medicine, it is my responsibility to staff our ICUs with physicians and other providers, and to work with others to staff our ICUs with the other healthcare professionals that we need including respiratory therapists. For the past two years, we have experienced consistent workforce shortages, requiring the need to pay considerable overtime, as well as hire very costly contract (traveling) respiratory therapists to meet patient and service demands.

As the respiratory therapy profession continues to evolve, respiratory therapists are assuming more advanced roles in assessing and treating patients. This pattern will likely continue. As vital members of the healthcare team, particularly at academic medical centers such as UNMC/Nebraska Medicine, I endorse the preparation of respiratory therapists at the master’s level.

I understand the extensive clinical education needs for all allied health professionals, including respiratory therapists. We have 20 very skilled and experienced full-time respiratory therapists on staff who are anxious to provide clinical education experiences for the students in the new respiratory therapy program.

Thank you for your leadership in developing this much needed program. I look forward to continuing to work with you in support of the development of the program to ensure that this vision becomes a reality.

Sincerely,

David E. Gannon, MD, FACP, FCCP  
Associate Professor of Medicine  
Division of Pulmonary, Critical Care, and Sleep  
University of Nebraska Medical Center  
Critical Care Medical Director  
Nebraska Medical Center  
Phone: (402) 559-8336
3/15/2021

Kyle P. Meyer, PhD, MS, PT, FASAHP
Dean, College of Allied Health Professions
984000 Nebraska Medical Center
Omaha, NE 68198-4000

Dr. Meyer,

I am writing to offer my strong endorsement and support for the proposal to develop a Master’s entry-level respiratory therapist education program at the UNMC College of Allied Health Professions. As a respiratory therapist in our system and city, I can attest to both the value of, and the increasing demand for these professionals. Respiratory therapists have always been vital members of the healthcare team taking care of patients with a variety of cardiopulmonary conditions. The pandemic has brought to light just how important these individuals are in the delivery of high quality care.

As the President of the Nebraska Society for Respiratory Care it has been my experience that in the last twelve years we have had consistent workforce shortages requiring the need to pay considerable overtime as well as hire contract respiratory therapists across the state to meet patient and service demands.

As the respiratory therapy profession continues to evolve, respiratory therapists are assuming more advanced roles in patient assessment and treatment. I see this pattern continuing and I understand the extensive clinical education needs for all allied health professionals, including respiratory therapists. As vital members of the healthcare team, particularly at academic medical centers, I support and see the need to further develop respiratory therapists and this Master’s level program will deliver that.

Thank you for your leadership in developing this much needed program. I look forward to continuing to work with you in support of the development of the program to ensure this vision becomes a reality.

Sincerely,

Heather K. Nichols, MBA, BS RRT
Department Operation Lead Analyst, Emergency Medicine, University of Nebraska Medical Center
President of the Nebraska Society for Respiratory Care
March 9, 2021

Kyle P. Meyer, PhD, MS, PT, FASAHP
Dean, College of Allied Health Professions
984000 Nebraska Medical Center
Omaha, NE 68198-4000

Dear Dr. Meyer:

I am writing to offer my endorsement and support for the proposal to develop a master’s entry-level respiratory therapist education program in the UNMC College of Allied Health Professions. As the Director of Emergency Services and Acute Care Support who sees the valuable services respiratory therapists provide our care teams, I can attest to both the value of, and the increasing demand for these professionals. Respiratory therapists have always been vital members of the healthcare team taking care of patients with a variety of cardiopulmonary conditions. The pandemic of the past year has brought to light just how important these individuals are in the delivery of high quality care.

As the Director of Emergency Services and Acute Care Support, it is my responsibility to align resources, including respiratory therapists, to staff daily hospital operations. For the past 2 years, we have experienced consistent workforce shortages, requiring the need to pay considerable overtime (sometimes mandatorily) and bonus, as well as hire contract respiratory therapists to meet patient and service demands.

As the respiratory therapy profession continues to evolve, respiratory therapists are assuming more advanced roles in patient assessment and treatment. I see this pattern continuing. As vital members of the healthcare team, particularly at academic medical centers, I endorse the preparation of respiratory therapists at the master’s level. This program would support Nebraska Medicine’s mission in the community and region.

I understand the extensive clinical education needs for all allied health professionals, including respiratory therapists. We have 20 full-time respiratory therapists on staff who are anxious to provide clinical education experiences for the students in the new respiratory therapy program.

Thank you for your leadership in developing this much-needed program. I look forward to continuing to work with you in support of the development of the program to ensure this vision becomes a reality.

Sincerely,

Bill Koile, MS, MBA
Emergency Services and Acute Care Support Director
Nebraska Medicine
987444 Nebraska Medical Center, Omaha, NE 68198
402.552.3254
bkoile@nebraskamed.com
May 3, 2021

Dr. Kyle Meyer  
Dean, College of Allied Health Professions  
University of Nebraska Medical Center  
984000 Nebraska Medical Center  
Omaha, NE 68198-4000

Dear Dr. Meyer,

The leadership of CoBGRTE supports the development of a master’s degree respiratory therapy (RT) program at University of Nebraska Medical Center. Producing new respiratory therapists with the knowledge and skills needed for the 21st century has become increasingly important, especially considering the COVID-19 pandemic. There is a need to increase the number of respiratory therapists with advanced levels of training and education to meet the demands of providing services requiring complex cognitive abilities and patient management skills. Therefore, the CoBGRTE strongly encourages the continuing development of graduate RT education programs.

The US Bureau Labor Statistics notes the respiratory therapy profession is expected to grow much faster than average at a rate of 19%.1 In April 2021, the New York Times listed respiratory therapy as one of top health care jobs on the rise.2 In addition to the growth of the profession, the AARC 2020 Human Resource Survey notes than approximately 50% of all RTs will leave the profession by 2032.3

In 2009, the American Association for Respiratory Care (AARC) published the first of three reports on the AARC 2015 and Beyond conferences on the future direction of the profession. The first report addressed the following areas:4

- What will the future health care system look like?
- What will be the roles and responsibilities of RTs in the future system?

The AARC Board of Directors (BOD) accepted the direction for the future of health care and RTs roles and responsibilities as recommended in this report in April of 2012. The second report was published in 2010 addressed the competencies needed by respiratory therapists.5 The AARC BOD accepted the competencies as recommended in July of 2012. The third report, published in 2011, addressed the mechanisms by which the respiratory care workforce would acquire these needed competencies.6 Among other steps, this report recommended that entry level respiratory care education be (at a minimum) the baccalaureate level and the RRT credential be the entry level credential by the year 2020. In 2016, the AARC published its long awaited position paper on Respiratory Therapist Education.7 In publishing this paper, the AARC has taken a crucial step in advancing Respiratory Care as a true profession in the eyes of the medical community and governmental agencies. The AARC is on record that the education needed to enter professional practice as a respiratory therapist must be at a minimum of the baccalaureate level:
“Training and education for entry-to-practice as a respiratory therapist should be provided within programs awarding a bachelor’s or master’s degree in respiratory care (or equivalent degree titles) and all newly accredited respiratory care educational programs must award, as a minimum, the bachelor’s degree in respiratory care (or equivalent degree title).”

Also, very important is the supportive response to the AARC position paper by the Commission on Accreditation for Respiratory Care (CoARC Response published on January 25, 2016). See excerpt below.⁸

“The CoARC acknowledges that respiratory therapists with baccalaureate and graduate education are needed in larger numbers to serve as educators, researchers, managers, clinical specialists, and other roles throughout the healthcare delivery system. Likewise, the CoARC recognizes the prominent role played by associate degree respiratory therapy programs. To support the increasing extent and complexity of the skills required of graduates of respiratory care programs and the associated movement of the profession toward baccalaureate and graduate degrees, the CoARC Board of Commissioners, in collaboration with the AARC, approved the following change to Standard 1.01 in the Accreditation Standards for Entry into Respiratory Care Professional Practice, to be effective January 1, 2018:

Except as provided in the following sentence, an educational sponsor must be a post-secondary academic institution accredited by a regional or national accrediting agency that is recognized by the U.S. Department of Education (USDE) and must be authorized under applicable law or other acceptable authority to award graduates of the program an associate or higher baccalaureate or graduate degree upon the completion of the program.

We hope our letter demonstrates the level of support for new graduate programs needed to produce competent respiratory therapists for the 21st century over the next 10 years. In 2019, the AARC has published a position paper stating that by 2030 all RTs entering practice should hold a baccalaureate degree or higher in respiratory care.⁹ The number of BSRT and MSRT entry programs has increased but not at the pace needed to supply the workforce with RRTs with adequate education and training to meet the demands of complex current day healthcare delivery.¹⁰ As a strong medical center and leader in health professions education, the University of Nebraska Medical Center is poised to develop and implement a model RT master’s degree program. CoBGRTE strongly supports your efforts.

We hope the references above will help you feel confident in approving this important new master’s degree RT program at University of Nebraska Medical Center.

Sincerely,

Christy Kane  Thomas A. Barnes

Christy Kane, PhD, RRT, FAARC  Thomas A. Barnes, EdD, RRT, FAARC
President, CoBGRTE  Executive Director, CoBGRTE
c Kane@bollarme.edu  t.barnes@cobgrte.org
REFERENCES

10. CoBGRTE list of BSRT and MSRT entry programs: BSRT and MSRT Entry Programs December 29, 2020
Dear Dr. Meyer:

I am writing to voice my support for a Master of Sciences Respiratory Therapy program at the University of Nebraska Medical Center. As an educator and leader of a clinical department in the profession and my role as the President of the National Board for Respiratory Care, I can assure you that there is a need for more MS programs in respiratory care.

Although a majority of entry-level programs in respiratory care are at the associate degree level, there is an effort by the American Association of Respiratory Care to raise the entry-level to a bachelor’s degree by 2030. As more programs move toward a baccalaureate level, faculty will need to have a master’s degree to meet regional accreditation standards. In addition, many leadership roles, such as department manager or director positions, also require the respiratory therapist to have a master’s degree.

I have been a program director for an entry MS respiratory care program for over 10 years. I can attest to the clinical impact that this level of graduate can have at the bedside. Their ability to interpret and apply clinical research at the bedside has helped improve patient outcomes at Rush University Medical Center. The graduates’ critical thinking ability has allowed more advanced “assess and treat” protocols as well as the implementation of a universal lung-protective ventilation strategy. Our respiratory care clinical services have received APEX awards from the AARC for our clinical excellence. We have also increased from limited publications in FY09 to numerous publications in FY21. However, more individuals are needed to conduct research to continue advancing the science in respiratory care.

As stated above, there are multiple professional needs for MS degree respiratory therapy/care programs. There is also a large demand in the market for this level of graduate. I routinely receive emails from employers around the country seeking to employ our MS graduates. This employer demand has increased due to the COVID-19 pandemic. The pandemic has also raised public awareness of the profession and created new opportunities for respiratory therapists. If I can answer any questions, please feel free to contact me.

Sincerely,

David Vines

David L. Vines, Ph.D., RRT, FAARC, FCCP
President of NBRC
Chair, Respiratory Care Program Director
Associate Professor, Department of Cardiopulmonary Sciences
Rush University Medical Center
Appendix D
Letter of Budgetary Support - College of Allied Health Professions

May 3, 2021
David Jackson, PhD
Vice Provost
University of Nebraska
3835 Holdrege
Lincoln, NE 68583-0743

Dear Dr. Jackson:

I am writing in support of the development of a new professional program, Masters of Respiratory Care, in the College of Allied Health Professions (CAHP) at the University of Nebraska Medical Center (UNMC). Specifically, I want to address the budget for the proposed program.

Should the proposal to develop a respiratory therapy education program be approved, the CAHP and UNMC have separate funding to support the initial 2 years of the startup of the program. The funding is available from college auxiliary activities, not from funds committed to supporting our existing programs. The startup of the respiratory therapy education program would have no negative financial impact on other programs in the CAHP. Tuition revenue for the proposed program is expected to commence with the first cohort of 30 students, anticipated in the Fall of 2023, and ultimately the program will generate tuition revenue sufficient to cover associated expenses.

The mission of the UNMC and the CAHP, as Nebraska’s only public academic health science center is to offer health professions education programs to serve both the students and ultimately the citizens of Nebraska and the region. The CAHP is committed to educating the most highly-qualified allied health workforce, and believes there is a need in Nebraska and the region for graduate-level prepared respiratory therapists, and that this need will only increase in the years ahead.

As such, we are committed to the development of the proposed program, and the investment required to ensure the highest level of success.

Sincerely,

Kyle P. Meyer, PhD, MS, PT, FASAHP
Dean

College of Allied Health Professions
Office of the Dean
964000 Nebraska Medical Center
Omaha, NE 68198-4000 | 402.559.7428 | unmc.edu/alliedhealth/
### TABLE 1: PROJECTED EXPENSES - NEW INSTRUCTIONAL PROGRAM

**UNMC Master of Respiratory Care**

<table>
<thead>
<tr>
<th>Personnel</th>
<th>FTE</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>0.5</td>
<td>$64,942</td>
<td>$247,519</td>
<td>3.50</td>
<td>$417,986</td>
<td>4.00</td>
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<tr>
<td>Graduate Assistants</td>
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<td>1.00</td>
<td>$69,817</td>
<td>1.00</td>
<td>$71,563</td>
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<td><strong>Subtotal</strong></td>
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<td>$281,576</td>
<td>4.50</td>
<td>$487,803</td>
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<td></td>
</tr>
<tr>
<td>General Operating*</td>
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<td>$70,394</td>
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<td>$138,749</td>
<td>$142,218</td>
<td>$489,547</td>
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<tr>
<td>Equipment</td>
<td>$0</td>
<td>$110,000</td>
<td>$110,000</td>
<td>$6,500</td>
<td>$0</td>
<td>$226,500</td>
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</tr>
<tr>
<td>New or Renovated Space</td>
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<td>$200,000</td>
<td>$100,000</td>
<td>$0</td>
<td>$0</td>
<td>$300,000</td>
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<tr>
<td>Library/Information Resources</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
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<td>$425,394</td>
<td>$363,951</td>
<td>$150,749</td>
<td>$142,218</td>
<td>$1,128,547</td>
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<tr>
<td><strong>Total Expenses</strong></td>
<td>$111,177</td>
<td>$706,970</td>
<td>$851,754</td>
<td>$705,745</td>
<td>$711,069</td>
<td>$3,086,735</td>
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</tbody>
</table>

**NOTE:** All expenses are inflated at 2.5% per year.

1. Faculty includes a program director, clinical education coordinator and two faculty.
2. General operating expense includes faculty development, travel, office equipment and supplies, program events (convocation, professional ceremony, orientation), and typical marketing and recruiting costs.
3. Respiratory care involves the use of significant equipment resources such as hi-fidelity simulators and ventilators.
4. Classroom and laboratory space likely will require renovations and technology investments to ensure an outstanding student experience. Some funding may be needed for office renovations.
5. Projections include faculty recruitment and relocation expenses, one-time accreditation fees, and amplified program marketing and recruiting expenses in the first several years of the program.

### TABLE 2: PROJECTED REVENUES - NEW INSTRUCTIONAL PROGRAM

**UNMC Master of Respiratory Care**

<table>
<thead>
<tr>
<th></th>
<th>(FY2022)</th>
<th>(FY2023)</th>
<th>(FY2024)</th>
<th>(FY2025)</th>
<th>(FY2026)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Funds</strong></td>
<td>$111,177</td>
<td>$706,970</td>
<td>$434,727</td>
<td>$0</td>
<td>$0</td>
<td>$1,252,874</td>
</tr>
<tr>
<td><strong>Required New Public Funds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. State Funds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Local Tax Funds (community colleges)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition and Fees ²</td>
<td>$417,028</td>
<td>$737,829</td>
<td>$806,430</td>
<td>$1,961,287</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Funding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$111,177</td>
<td>$706,970</td>
<td>$851,755</td>
<td>$737,829</td>
<td>$806,430</td>
<td>$3,214,161</td>
</tr>
</tbody>
</table>

1. College/Campus auxiliary funds will be used to support the program.
2. Flat rate tuition will be charged based on the 2020-2021 approved rate for similar master's degree programs in the CAHP ($367/credit hour for residents and $965/credit hour for non-residents, inflated at 2.5% after the 2020-2023 tuition freeze expires). Net of 9% remissions on resident rates and 42% remissions on non-resident rates.

### Tuition and Fees Revenue Calculation

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Residents Matriculating 2024</td>
<td>16</td>
<td>$322,960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Non-residents Matriculating 2024</td>
<td>4</td>
<td>$212,300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Residents Matriculating 2025, on-going</td>
<td>18</td>
<td>$534,672</td>
<td>$568,260</td>
<td>$583,020</td>
</tr>
<tr>
<td>Number of Non-residents Matriculating 2025, on-going</td>
<td>6</td>
<td>$433,237</td>
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<td>$511,286</td>
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<td>Tuition Generated</td>
<td>$535,260</td>
<td>$967,909</td>
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<td>Projected Remissions = 9% resident, 42% non-resident</td>
<td>($118,232)</td>
<td>($230,080)</td>
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<tr>
<td>Net Revenue</td>
<td>$417,028</td>
<td>$737,829</td>
<td>$806,430</td>
<td>$827,094</td>
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</table>

Based on 55 credit hours in Year 1 and 27 credit hours in Year 2.
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Establishment of Genome Editing and Education Center-Nebraska in the Department of Pharmacology and Experimental Neuroscience in the College of Medicine at the University of Nebraska Medical Center

RECOMMENDED ACTION: Approval to establish the Genome Editing and Education Center-Nebraska (GEEC-Nebraska) in the Department of Pharmacology and Experimental Neuroscience in the College of Medicine at the University of Nebraska Medical Center (UNMC)

PREVIOUS ACTION: None

EXPLANATION: The proposed UNMC Genome Editing and Education Center-Nebraska will transform its existing Mouse Genome Engineering Core Facility into a larger Academic Multidisciplinary Research Center. UNMC’s current facility is used to create genetically engineered mouse models for researchers working to treat neurological and immunological dysfunctions, HIV and other viruses (including SARS-CoV-2), hearing and eye diseases, and various cancers. The core facility also supports many fields of basic science research. UNMC faculty and the core facility are recognized as global leaders in developing breakthrough genetic engineering technologies, some of which are used by the three major National Institutes of Health (NIH)-funded Knockout Mouse Phenotyping (KOMP) Centers (one located on each coast and one in Texas). The proposed Center will better position UNMC to scale up its scientific services to two to four times the number of investigators locally and globally, improve technologies further to address the problems of generating models for difficult-to-target genes, and perform these services for larger multi-disciplinary teams. One objective of the new Center will be to obtain an NIH KOMP Center designation, which will provide additional funding and identify the University as a primary resource for improving human and animal health in the Midwest and the world.

This proposal has been reviewed by the Council of Academic Officers; it also has been reviewed by the Academic Affairs Committee.

PROGRAM COST: $591,000 for Year 1; $1,051,000 over five years

SOURCE OF FUNDS: Extramural support, UNMC internal support, and revenue from core services

SPONSORS: H. Dele Davies
Senior Vice Chancellor for Academic Affairs

Jeffrey P. Gold, Chancellor
University of Nebraska Medical Center
RECOMMENDED:

Jeffry P. Gold, M.D.
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

DATE: July 16, 2021
May 12, 2021

Susan Fritz, Executive Vice President and Provost
University of Nebraska
3835 Holdrege Street
Lincoln, NE 68583
smfritz@nebraska.edu

Dear Provost Fritz:

I am forwarding you the materials relating to a proposed Genome Editing and Education Center- Nebraska (GEEC-Nebraska) to be administered by UNMC. This is a new application to transform UNMC’s Mouse Genome Engineering Core Facility (MGECF) into an Academic Multidisciplinary Research Center. A major purpose of this proposal is to position UNMC to attract an NIH-designated KOMP/IMPC Center, of which there are none in the region. The current Core Facility is one of the leading laboratories in mouse genome editing technology development. Being in the mid-west region, a center designation will give UNMC a very high chance of attracting an NIH Center designation in the next few years.

Currently, similar to the KOMP centers, UNMC MGECF offers end-to-end services to develop mouse models for the scientific community within and outside of UNMC. Additionally, the UNMC MGECF has been outperforming other laboratories in terms of the number of models generated, and the number of investigators served when compared to the resources available at centers like KOMP. The center, once approved, will continue, expand, and improve current services and technologies.

This proposal has been reviewed, and it has my approval. I am requesting your review and approval and that it be reported to the Board of Regents at an upcoming meeting.

Sincerely,

Jeffrey P. Gold, M.D.
Chancellor
I. Descriptive Information

<table>
<thead>
<tr>
<th>Name of Institution Proposing New Center</th>
<th>University of Nebraska Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Proposed Center</td>
<td>Genome Editing and Education Center- Nebraska (GEEC-Nebraska)</td>
</tr>
<tr>
<td>Name of the Programs (majors) Involved</td>
<td>Genome Editing, Animal models, Molecular Genetics, Genomics.</td>
</tr>
<tr>
<td>Other Programs Offered in this Field by Institution</td>
<td>None</td>
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<tr>
<td>Administrative Unit(s) for the Proposed Center</td>
<td>College of Medicine, Department: Pharmacology and Experimental Neuroscience</td>
</tr>
<tr>
<td>Physical Location, if applicable</td>
<td>DRC II Room 1014 + Additional space to be allocated</td>
</tr>
<tr>
<td>Date Approved by the Governing Board</td>
<td>Pending</td>
</tr>
<tr>
<td>Proposed Date the Center will be Initiated</td>
<td>Upon approval by the Coordinating Commission.</td>
</tr>
</tbody>
</table>

II. Review Criteria

A. Purpose and Context for the Center

Importance of animal models for understanding human physiology and for development of therapies for human and animal diseases. Invariably, all medicines approved for treating human and animal diseases have undergone prior testing in animal models. Experiments using animal models, such as mice, have also helped how our body works. Of all different laboratory animals, the mice are most predominantly used, because of the cost, their short life cycle and they also contain majority of the same type of genes that we humans have, and the molecular processes are highly similar between humans and mice. Nearly 70% of NIH funded research projects rely on mouse models. Another major reason why mouse has been a preferred laboratory animal species is that the genetic engineering technology to insert foreign genes into mice (called transgenic mice) or delete a gene of interest (called knockout mice) are well-established, and these technologies can create custom-made humanized mouse models suitable for studying numerous human diseases.
Several thousands of custom made mouse models have been developed so far, which are used for research to understand human physiology and disease. Here we provide two examples of custom made mouse models to emphasize their value for human health: *avatar mice and COVID19 mice*. **Avatar mice** represent miniature human cancer patients (termed “avatars”), wherein cancer cells from a patient are implanted into several groups of mice and each group of avatar mice are given different chemotherapy options to learn which chemotherapy works best against the patient’s cancer cells, and the clinicians can use this information for deciding a suitable chemotherapy regimen for the patient. If human cancer cells are implanted into regular (wild type) mice, they reject the cells because they are foreign to mice and the mouse immune system attacks human cells. Avatar mice are created by deleting several mouse immunological genes and inserting human genes in (through genetic engineering technology), so that the mice do not reject human cells. **COVID19 mouse models**: research community quickly learnt that SARS-CoV-2 does not infect mice because the protein receptor that the virus attaches on to human cell surface (called Ace2) is different in mice and the virus is unable to enter mouse cells. Fortunately, however, genetic engineering technology in mice are so advanced that human Ace2 gene can be transferred to mice to create humanized Ace2 mice that can be used for infecting SARS-CoV-2 and test medicines and vaccines against COVID19.

UNMC has been a global leader in developing breakthrough genetic engineering technologies, particularly the latest advance in the field called CRISPR (Clustered Regularly Interspersed Palindromic Repeats)-Cas system. UNMC has established a transgenic mouse core facility to create custom made genetically engineered mouse models for researchers working in various diseases including cancer, neuroscience, immunology, HIV, hearing, eye diseases, COVID19 research and many fields of basic science research. More importantly, the core has accomplished much more in this area by developing newer technologies and has earned a worldwide recognition. Specifically, a far simpler and a most robust version of CRISPR called, **Easi-CRISPR (Efficient additions with ssDNA inserts CRISPR)**, was developed at UNMC, which is now adapted at hundreds of laboratories worldwide as the method of choice for creating mouse models.

This is a proposal to transform UNMC’s Mouse Genome Engineering Core Facility (MGECF) into an Academic Multidisciplinary Research Center. The ultimate purpose of this proposal is to position UNMC to attract an NIH designated KOMP/IMPC Center. Specifics and additional details about the KOMP/IMPC program are described in section “I” (Constituencies to be Served), and we briefly describe the context of this application.
In April 2020, recognizing the outstanding accomplishments of the UNMC MGECF, Dr. Bradley Britigan (Dean of the UNMC College Of Medicine) and Dr. Howard Gendelman (Chairperson of the Pharmacology and Experimental Neuroscience Department) enthusiastically agreed to support the launch of a new Center for Genome Editing Technologies. The new center will leverage UNMC’s outstanding position in CRISPR mouse genome editing.

The NIH initiated a large-scale project, in 2006, called KnockOut Mouse Project (KOMP) with a goal to create knockout mice for every single gene in mice. The KOMP project has continuously funded three centers in the US, all located along coasts (approximately $25-$30M per center per 5 year period). By 2010 the focus of KOMP shifted from complete KO mice to conditional KO mice where a given gene is knocked out only in specific cells and at a certain stage of life in mice. In 2013, when CRISPR technology was first published, the mouse genetics community thought that it could radically change the mouse model generation workflow. However, many transgenic facilities worldwide, including the KOMP centers, were unable to use CRISPR technology for creating conditional KO mice. **The Easi-CRISPR technology developed at UNMC solved the major problem in the field which was the length of time it took to create a usable mouse model.** The Easi-CRISPR method has now been adopted at the three NIH KOMP centers and is currently being used to develop important mouse models. Several of UNMC’s scientific contributions (published in over a dozen articles in the past 5 years) have drawn significant attention from the NIH and from the transgenic mouse community worldwide, bringing attention to UNMC’s strengths and capabilities. The Director of MGECF was also awarded a unique type of grant called the Outstanding Investigator Award from the National Human Genome Research Institute (NHGRI) for further improvement of the CRISPR technologies used for developing mouse models.

**Workforce development:** Currently the staff at UNMC MGECF is the director, two technicians (3 FTEs) and a part time administrator. This core offers end-to-end services (including designing, construct generation, microinjection, genotyping up to germ line transmission, and breeding) while most cores offer mainly microinjection services. Excluding phenotyping and our mouse repository services, MGECF core already operates similar to a mini-KOMP center. In the next three to four years, we aim to demonstrate to the NIH that: (a) we have infrastructure and capabilities on par with the existing KOMP centers, and; (b) that our unique technical capabilities will be particularly useful for the KOMP operations. Our specific plans to achieve KOMP status would be: (i) to recruit a few more technical personnel to the core which will allow us to develop new techniques and provide more services, (ii) this will increase our critical mass and provide the technical personnel necessary to compete for a center grant, and; (iii) to develop high throughput technologies and tools appropriate for plugging-in to the on-going operations of KOMP (through the use of the currently funded R35 grant to Dr. Gurumurthy).

In order to take the UNMC MGECF’s success to the next level (attracting a KOMP center to Nebraska, for example), MGECF will need to achieve four major things: 1) scaling up of its scientific services by doubling or tripling in the next couple years, 2) offering those services to two to four times the number of investigators locally and globally, 3) improve technologies further to address the problems of generating models for difficult-to-target genes and 4) more importantly perform these activities as part of a designated center at the University with multi-disciplinary teams of expertise utilizing and overseeing its services. These activities should demonstrate to the funding agencies, such as NIH, that UNMC has exceptional faculty, well organized and functioning teams, plus the infrastructure and framework for initiating and operating a bigger center like KOMP. The launching of GECE-Nebraska would be the first step in this direction, and will position the university to attract an NIH designated mouse genetics center like KOMP. **In addition, having an NIH designated center within the UN system will stimulate innovative research, contribute to the education and knowledge-sharing missions of the university and importantly it will also increase the skilled workforce and significantly contribute to the overall economic growth in Nebraska; the typical number of full time employees in the existing KOMP centers is 10-fold or more.**

This proposal builds upon a number of MGECF core accomplishments made during the past half decade and extends the research to a larger number of investigators both inside and outside the University.
• MGECF laboratory has published a series of high impact papers on traditional transgenic technologies as well as the latest advanced technologies including the CRISPR-Cas (clustered regularly interspaced short palindromic repeats) system. Some of the MGECF papers are regarded as landmark papers in the field and several have been cited more than 50 times. Please see Appendix A for a list of 25 important papers from MGECF.

• Innovations made at the University of Nebraska Medical Center’s (UNMC) MGECF, such as Efficient Additions with ssDNA inserts-CRISPR (Easi-CRISPR) and Genome editing by Oviductal Nucleic Acids Delivery (i-GONAD) methods, have been regarded as scientific breakthroughs that have redefined transgenic technologies practiced for the last 30 years”.

• Easi-CRISPR and i-GONAD methods have now been adopted at over a hundred laboratories/core facilities worldwide.

• The inventions have earned the UNMC core director over 80 invitations for keynote talks and presentations, meetings and workshop organizations, and the prestigious position of serving as chair for sessions at international conferences (17 invitations in 12 countries).

• These scientific contributions have been instrumental in the awarding of NIH grants to UNMC researchers totaling 25M dollars and are responsible for the director receiving the Outstanding Investigator Award from the National Human Genome Research Institute (NHGRI). This award allows the recipient complete flexibility to explore any research idea in the area of genomic technologies. See Appendix B for list of extramural funding received as a direct result of the technologies and/or mouse models developed at MGECF.

• MGECF’s scientific accomplishments have made several local, national and international news headlines (See Appendix C).

• Attracted numerous collaborations, worldwide. The UNMC MGECF work has attracted collaborations with diverse areas from neuroscience, immunology, developmental biology, virology and oncology. The director has demonstrated exceptional abilities in building and maintaining a large number of fruitful collaborations locally, nationally, and globally (see section H for list of external collaborations).


• Developed breakthrough technologies: PIT1, i-PITT, CRISPR-First;PITT-next, GONAD, i-GONAD & Easi-CRISPR. The research community regards MGECF contributions as “breakthroughs that have redefined the previously Nobel Prize awarded transgenic technologies practiced for the last four decades”.

Important landmark papers relevant to MGECF’s contribution on mouse genome engineering technologies


The overarching goal of the center will be to attract NIH funding to create a Nebraska Mouse Resource and Research Center (NMRRC). The NIH has a funding mechanism to support several centers called Mutant Mouse Resource and Research Center (NMRRC). The launching of a regional MMRRC center in Nebraska (NMRRC), will position UNMC to attract multi-million dollar program project grants from the NIH and it will increase the workforce and economic growth in Nebraska (described in the later sections).

The Center will have three objectives:

- **Research**: The proposed center will develop novel technologies for animal genome engineering.
- **Service**: The center will offer services to internal and external researchers working on numerous human diseases and develop animal models suitable for their research.
- **Education**: The center will organize CRISPR and mouse genome editing workshops for new technologies. The director of the mouse genome engineering core has received over 80 invitations to deliver keynote talks, seminars and workshops worldwide. With the initiation of the center at UNMC, we will organize workshops at UNMC. The center will offer opportunities for teaching and training students, technicians and post-doctoral fellows including summer training programs for post-secondary students.

The ultimate goal of these three objectives is to position UNMC to attract multi-million dollar program project grants from the NIH (see below) within 5-10 years.

### B. Centrality to UNMC Role and Mission

The proposed center directly fulfills the UNMC missions of research innovation, services, and education as follows. The UNMC MGECF has excelled in research innovation (several high impact methods and technologies have been developed at UNMC that are now followed as standard methods at hundreds of laboratories worldwide). The core has served numerous internal university researchers in addition to external research clients and has had significant impacts on their research projects. Our education and knowledge dissemination presentations are in high demand. The MGECF team has conducted highly popular workshops and offered seminars and lectures at conferences in several countries. These activities have earned worldwide recognition for UNMC in the field of Genome Editing. The trajectory of these efforts—research innovation, education and services—will continue to climb and will be performed at an even higher level through the initiation of the GEEC-Nebraska Center. The work done by the center will raise the stature of the University with the ultimate goal for an NIH Designated Center to be established at UNMC in the next 5-10 years (see section I “Anticipated Outcomes, Significance, and Specific Measures of Success”).

### C. Relationship of the proposal to the NU Five-Year Strategy

*Broad themes of the NU Five-Year Strategy are:*

- student access and success,
- excellence in teaching and research,
- diversity and inclusion,
- partnerships, 
- fiscal effectiveness.
- Workforce development
The goals of the GEEC-Nebraska align very well with these NU Five-Year Strategy themes as follows:

**Student access and success:** One of the objectives of GEEC-Nebraska is to provide education that will serve students at all levels. Specifically, the knowledge and the technologies developed at the center will be made available to the learning community through courses, lectures, seminars, and hands-on workshops.

**Excellence in teaching and research:** Genome editing technology is a very hot field. UNMC MGECF has made significant contributions to genome editing research already and the core director has received dozens of invitations for lectures and seminars all over the world. With the initiation of the GEEC-Nebraska center, we anticipate expanding the teaching of genome editing technologies and related applications and better serving the learning communities within and outside the state.

**Diversity and inclusion:** We anticipate recruiting additional workforce that includes faculty members and technicians. We thrive on fostering an Inclusive Culture and Environment while serving the community and expanding the GEEC-Nebraska team. The director of MGECF strongly believes in and practices diversity and inclusion. Dr. Gurumurthy was invited and is enrolled in an NIH mentoring and training program called Culture Change (C-Change) for leadership and diversity training; a one-year course that will be completed Fall 2021.

**Partnerships:** As evident in the list of collaborating institutes (see section H ), UNMC MGECF has successfully partnered with research teams at dozens of institutes and universities external to the UN system. The initiation of GEEC-Nebraska is expected to greatly enhance the partnerships and collaborations that MGECF has established over the years.

**Fiscal effectiveness:** MGECF has developed highly efficient gene editing technologies (such as Easi-CRISPR and GONAD), which have reduced the costs of generating disease models by about one-third based on reducing the length of time from the one to two years that it used to take to make a model with the previous technologies. Easi-CRISPR technology can now produce a usable mouse model in approximately four to six months. With our demonstrated success in developing cost effective and efficient technologies and with additional newly trained workforce additions, we will be able to deliver the best (technologies and services and education) to the community.

**Workforce development:** Currently the staff at UNMC MGECF is the director and two technicians (three FTEs) and a part time administrator. This core offers end-to-end services (including designing, construct generation, microinjection, genotyping up to germ line transmission, and breeding) while most cores offer mainly microinjection services. Excluding phenotyping and our mouse repository services, MGECF core already operates similar to a mini-KOMP center. In the next three to four years, we aim to demonstrate to the NIH that: (a) we have infrastructure and capabilities on par with the existing KOMP centers, and; (b) that our unique technical capabilities will be particularly useful for the KOMP operations. Our specific plans to achieve KOMP status would be: (i) to recruit a few more technical personnel to the core which will allow us to develop new techniques and provide more services, (ii) this will increase our critical mass and provide the technical personnel necessary to compete for a center grant, and; (iii) to develop high throughput technologies and tools appropriate for plugging-in to the on-going operations of KOMP (through the use of the currently funded R35 grant to Dr. Gurumurthy).

### D. Consistency with the Comprehensive Statewide Plan for Post-Secondary Education

GEEC-Nebraska will contribute to five specific areas of Nebraska’s statewide goals listed in four (of the seven) chapters: [https://ccpe.nebraska.gov/sites/ccpe.nebraska.gov/files/CompPlan.pdf](https://ccpe.nebraska.gov/sites/ccpe.nebraska.gov/files/CompPlan.pdf)

**Postsecondary education for Nebraska’s future (Chapter 1) and meeting the educational needs of students (Chapter 2):** There is local, regional, national, and international interest in CRISPR-based technologies. Dr. Gurumurthy has received numerous inquiries from high school students, schoolteachers, industry and the general public, all wanting to learn more about CRISPR and to visit the lab to learn how it is done. Under the
education component of GEEC-Nebraska, this need will be served (see below). The director has given talks at Omaha high schools, public libraries, and to colleges (Kearney) and at science cafes. This will be expanded, and plans are already underway to organize workshops every 18 months to two years that will integrate multiple campuses including and beyond UNMC. The director brings extensive experience in teaching GE technology. Dr. Gurumurthy has received and accepted multiple invitations to deliver talks and to organize conferences and workshops all over the world, including Greece, Belgium, Australia, UK, Czech Republic, and India. We plan to partner with teaching faculties from UNL, UNK and UNO, where undergraduate teaching is a major focus. Some of the participating teaching faculty have been involved in highly successful learning programs such as the Institutional Development Award Program Networks of Biomedical Research Excellence (INBRE) (Kimberly A. Carlson, Ph.D., Professor & Assistant Chair, Biology Department, UNK – Geneticist) and uBEATS, STEM e-learning program which is a UNMC-UNO partnership under the leadership of Dr. Paul Davis [faculty advisor to the Molecular and Biomedical Biology (MBB) and B.S. degree program at UNO] and Dr. Dele Davies (Senior Vice Chancellor for Academic Affairs at UNMC).

Meeting the needs of the state: workforce development, research and technology transfer, serving citizens, using technology to meet state needs (Chapter 3). As mentioned above (section A “Purpose and context of the center”), launching of GEEC-Nebraska is expected to ultimately attract an NIH designated center like KOMP leading to the opportunity to increase the workforce of the Genome Editing center by 10 fold or more. Under this new designation as a center (GEEC-Nebraska), MGECF will continue to do cutting edge research and technology development as well as present through workshops and provide additional teaching activities. The Center will transfer those technologies and disseminate knowledge to the learning community.

Meeting needs through exemplary institutions (Chapter 4): Through continued success of the GEEC-Nebraska Center and with the support of an NIH funded center like KOMP, we envision a strong probability that such an investment could lead to the launch of an institute (for example Genome Editing Institute), which would be targeted to develop in a decade or so.

Meeting educational needs through partnerships and collaboration (Chapter 5): The center expects to partner with the major institutions locally (Creighton University, Boys Town National Research Hospital) and the other campuses of the University of Nebraska system in addition to dozens of external institutes (see list in section H)

E. Evidence of Need and Demand

Laboratory mice constitute over 70% of all types of animal models used in biomedical research. Genetic engineering technologies, that became highly feasible in the mouse system during the past 3 decades, have made mouse models the most preferred genetic model system. When cost and feasibility are taken into account, the mouse becomes the animal model of choice for many researchers.

UNMC MGECF has developed hundreds of models for UNMC researchers in the past decade allowing them to publish dozens of papers and earn grant awards of over $25M in the past five to six years (see Appendix B for list of grants).

UNMC MGECF is also regarded as a role model core facility, attracting a large number of external collaborators to use its services. Unlike transgenic mouse core facilities at other institutes, UNMC MGECF offers end-to-end services including designing, construct generation, microinjection, genotyping, breeding to segregate mosaic mice, re-genotyping the offspring in the next (F1) generation, generating figures and writing of the technical sections for grants/manuscripts and consultation and knowledge-sharing with the PI’s team on their model/s. Due to these unique and exceptional services, UNMC MGECF has attracted several external clients. A list of a few examples of our external client base includes the NIH, Harvard University, Stanford University, University of Miami, University of Utah, University of Minnesota, University of North Dakota, University of California San Francisco, University of California San Diego, and University of California Davis.
The UNMC MGECF director has demonstrated exceptional collaborative skills and published several papers in high profile journals through those collaborations. In a recent example, the UNMC MGECF director led a consortium of 17 institutes around the world (from seven countries), publishing a comprehensive research study, with 112 authors, designed to understand the reproducibility of various CRISPR based methods of generating mouse models.

By establishing a center, we will provide the opportunity to undertake similar activities at a much higher level, serving two to four times the number of research teams and investigators, which will further the breakthrough research success we have achieved to date. As stated in section A, performing these activities as part of a designated center at the University with multi-disciplinary teams of expertise utilizing its services and overseeing its services will ultimately position UNMC to attract the support needed to become an NIH designated Center. In turn this will bring more recognition and financial support along with workforce development and economic growth to Nebraska.

F. Organizational Structure and Administration

**Director:** Channabasavaiah Gurumurthy (provides overall leadership and direction to the center).

The Center members will include several key faculty (listed below) who have been using genetically engineered mouse models for basic and translational research for several decades and who are from multiple disciplines ranging from pharmacology to cancer research to neuroscience. These faculty will serve as key users and advisers of the new center. The availability of this local expertise and faculty-pool will also serve as a critical factor in demonstrating (to extramural funding agencies in the future) the outstanding environment and expertise available at UNMC when applying for major center grants such as KOMP.

**Within the Pharmacology and Experimental Neuroscience Department**

Howard Gendelman, Pharmacology and Experimental Neuroscience
Larisa Poluektova, Pharmacology and Experimental Neuroscience
Santhi Gorantla, Pharmacology and Experimental Neuroscience
Xinglong Wang, Pharmacology and Experimental Neuroscience

**Outside the Pharmacology and Experimental Neuroscience Department**

Surinder Batra, Biochemistry and Molecular Biology
Mark Carlson, Surgery
Zeljka Korade, Pediatrics
Merry Lindsey, Physiology
Karoly Mirnics, Munroe-Meyer Institute
Wallace Thoreson, Ophthalmology

**Outside the UNMC campus**

<table>
<thead>
<tr>
<th>Investigator</th>
<th>Campus</th>
<th>Area of expertise: Research and/or Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruce Chase</td>
<td>UNO</td>
<td>Education-Genetics, Developmental Biology Advanced Genetics</td>
</tr>
<tr>
<td>Kimberly Clarkson</td>
<td>UNK</td>
<td>Research and Education- Biology and undergraduate teaching and STEM education and outreach research and Intracellular pathogens</td>
</tr>
<tr>
<td>Thomas Clemente</td>
<td>UNL</td>
<td>Plant Transformation Core Research Facility</td>
</tr>
<tr>
<td>Paul Davis</td>
<td>UNO</td>
<td>Research and Education, Toxoplasma research laboratory, undergraduate teaching, STEM education, K8 teaching and outreach</td>
</tr>
<tr>
<td>Jeff French</td>
<td>UNO</td>
<td>Research-Behavioral neuroscience- Marmoset model</td>
</tr>
<tr>
<td>Clayton Keling</td>
<td>UNL</td>
<td>Research- cattle genomics</td>
</tr>
<tr>
<td>Brandon Luedtke</td>
<td>UNK</td>
<td>Research and Education- Molecular Biology and undergraduate research and teaching and STEM education and outreach</td>
</tr>
</tbody>
</table>
Jay Reddy
UNL  
Research- Mouse models and Veterinary Immunology

Donald Reynolds
UNL  
Research-Poultry Veterinarian

William Tapprich
UNO  
Research and Education- Molecular Biology and undergraduate research and teaching and STEM education and outreach

Paul Twigg
UNK  
Research and education- plant molecular biology and STEM education, K8 teaching and outreach

Brett White
UNL  
Research- Transgenic pig model core

Advisory board
Howard Gendelman
Surinder Batra
Karoly Mirnics
Larisa Poluektova
Bradley Britigan

External advisory board will be formed once the center is officially launched.

G. Partnerships with Business

UNMC Mouse Genome Engineering core services have attracted multiple collaborations across the country and internationally (please see section H for the list of external collaborators that UNMC MGECF has attracted during the past 4 years). Some collaborations have led to several research grants from NIH popularly known as R21 and R01 grants with collaborators outside of UNMC (R21 with University of Colorado in which Dr. Gurumurthy is a contact PI and R01 with University of Utah; recently funded). More collaborations are underway.

The technologies and innovations made at UNMC MGE have attracted collaborations with industries and startup companies. Two patents and one provisional patent have been submitted. One technology (Easi-CRISPR) is licensed to Taconic. Easi-CRISPR is one of the leading model generation companies in the world. Tailored Therapeutics, a startup company is establishing a research collaboration with UNMC to leverage the potential of Easi-CRISPR in CAR-T therapy for cancer. Similar to this, we anticipate multiple collaborations from industries in the future.

H. Collaborations with Higher Education Institutions External to the University

UNMC MGECF has also been regarded as the role model core facility attracting a large number of external collaborators to use its services. Below is a list of external investigators and their institutes collaborating with MGECF on Mouse Genetics Projects.
<table>
<thead>
<tr>
<th>External to UN system Investigator</th>
<th>Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominic Cosgrove</td>
<td>Boys Town National Research Hospital</td>
</tr>
<tr>
<td>Barb Morley</td>
<td>Boys Town National Research Hospital</td>
</tr>
<tr>
<td>Yesha Lundberg</td>
<td>Boys Town National Research Hospital</td>
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<tr>
<td>Shanshank Dravid</td>
<td>Creighton University</td>
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<tr>
<td>Laura Hansen</td>
<td>Creighton University</td>
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<td>Suzanne Mansour</td>
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</tr>
<tr>
<td>Tekin Mustafa</td>
<td>University of Miami</td>
</tr>
<tr>
<td>Vadim Gladyshev</td>
<td>Brigham and Women’s Hospital</td>
</tr>
<tr>
<td>Michael Green</td>
<td>MD Anderson Cancer Center</td>
</tr>
<tr>
<td>Christopher Gregg</td>
<td>University of Utah</td>
</tr>
<tr>
<td>Prashant Mali</td>
<td>University of California San Diego</td>
</tr>
<tr>
<td>Kent Lloyd</td>
<td>University of California Davis</td>
</tr>
<tr>
<td>Cynthia Morton</td>
<td>Brigham and Women’s Hospital</td>
</tr>
<tr>
<td>Jyotika Sharma</td>
<td>University of North Dakota</td>
</tr>
<tr>
<td>Brian North</td>
<td>Creighton University</td>
</tr>
<tr>
<td>Sunil Sudarshan</td>
<td>University of Alabama</td>
</tr>
<tr>
<td>Doris Wu</td>
<td>NIH</td>
</tr>
<tr>
<td>Cynthia Morton</td>
<td>Harvard University</td>
</tr>
<tr>
<td>Doris Wu</td>
<td>NIH</td>
</tr>
<tr>
<td>Paul Bray</td>
<td>University of Utah</td>
</tr>
<tr>
<td>Luca Brunelli</td>
<td>University of Utah</td>
</tr>
<tr>
<td>Xue Zhong Liu</td>
<td>University of Miami</td>
</tr>
<tr>
<td>Francois Lallemend</td>
<td>Karolinska Institute Sweden</td>
</tr>
<tr>
<td>Guy Richardson</td>
<td>University of Sussex, UK</td>
</tr>
<tr>
<td>Claus Nerlov</td>
<td>Oxford University, UK</td>
</tr>
</tbody>
</table>

Even though the institutes/universities of all these external investigators (except Creighton and BTNRH) have transgenic mouse cores, they choose to work with UNMC because of the scientific excellence and the unique array of services and consultation offered at the UNMC MGE core.

*Establishing a center will provide the opportunity to undertake similar and additional activities that will take this success to the next level, earning accolades and further recognition for the UN system.*

I. **Constituencies to be Served**

*The center anticipates serving about 40 to 50 investigators annually, both internal and external to UNMC.*
Below is the list of 47 UN system investigators and 32 external investigators that used the services of the Mouse Genome Engineering Core Facility services during the past three years (2017-2020)

<table>
<thead>
<tr>
<th>Internal to UN system Investigator</th>
<th>Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karoly Mirnics</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kishore Bhakat</td>
<td>UNMC</td>
</tr>
<tr>
<td>Merry Lindsey</td>
<td>UNMC</td>
</tr>
<tr>
<td>Steve Bonasera</td>
<td>UNMC/VA</td>
</tr>
<tr>
<td>Larisa Poluektova</td>
<td>UNMC</td>
</tr>
<tr>
<td>Santhi Gorantla</td>
<td>UNMC</td>
</tr>
<tr>
<td>Wallace Thoreson</td>
<td>UNMC</td>
</tr>
<tr>
<td>Sung-Ho Huh</td>
<td>UNMC</td>
</tr>
<tr>
<td>Aiming Peng</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kyle Hewitt</td>
<td>UNMC</td>
</tr>
<tr>
<td>Tieshi Li</td>
<td>UNMC</td>
</tr>
<tr>
<td>Surinder Batra</td>
<td>UNMC</td>
</tr>
<tr>
<td>Hamid Band</td>
<td>UNMC</td>
</tr>
<tr>
<td>Vimla Band</td>
<td>UNMC</td>
</tr>
<tr>
<td>Donald Becker</td>
<td>UNL</td>
</tr>
<tr>
<td>Abdalla Meher</td>
<td>UNMC</td>
</tr>
<tr>
<td>Jyothi Arikkath</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kishore Bidasee</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kaustubh Datta</td>
<td>UNMC</td>
</tr>
<tr>
<td>Punitha Dhawan</td>
<td>UNMC/VA</td>
</tr>
<tr>
<td>Amar Singh</td>
<td>UNMC/VA</td>
</tr>
<tr>
<td>Jixin Dong</td>
<td>UNMC</td>
</tr>
<tr>
<td>Dunaevsky Anna</td>
<td>UNMC</td>
</tr>
<tr>
<td>Howard Gendelman</td>
<td>UNMC</td>
</tr>
<tr>
<td>Richard Gumina</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kyle Hewitt</td>
<td>UNMC</td>
</tr>
<tr>
<td>Michael Hollingsworth</td>
<td>UNMC</td>
</tr>
<tr>
<td>Kate Hyde</td>
<td>UNMC</td>
</tr>
<tr>
<td>Peter Kador</td>
<td>UNMC</td>
</tr>
<tr>
<td>Adam Karpf</td>
<td>UNMC</td>
</tr>
<tr>
<td>Woo-Yang Kim</td>
<td>UNMC</td>
</tr>
<tr>
<td>Robert Lewis</td>
<td>UNMC</td>
</tr>
<tr>
<td>Paras Mishra</td>
<td>UNMC</td>
</tr>
<tr>
<td>Ram Mahato</td>
<td>UNMC</td>
</tr>
<tr>
<td>Ali Naushad</td>
<td>UNMC</td>
</tr>
<tr>
<td>Babu Padanilam</td>
<td>UNMC</td>
</tr>
<tr>
<td>William Rizzo</td>
<td>UNMC</td>
</tr>
<tr>
<td>Nora Sarvetnick</td>
<td>UNMC</td>
</tr>
<tr>
<td>Pankaj Singh</td>
<td>UNMC</td>
</tr>
<tr>
<td>Joyce Solheim</td>
<td>UNMC</td>
</tr>
</tbody>
</table>
Anna Spagnoli  UNMC
Keer Sun  UNMC
Xinghui Sun  UNL
Sarah Thayer  UNMC
Kay-Uwe Wagner  UNMC
Nicholas Woods  UNMC
Janos Zempleni  UNL

In addition to internal investigators, a large number of external investigators from institutes throughout USA and international (listed in section H) will be served.

Anticipated Outcomes, Significance, and Specific Measures of Success

As described in the section ‘Purpose and Context for the Center’ above, mouse models have made tremendous contributions to our understanding of human physiology and for development of therapies for human and animal diseases. During the past few years, UNMC’s mouse genome engineering core has created a couple hundred mouse models for investigators working in various research fields such as cancer, neuroscience, immunology, HIV, hearing, eye diseases, COVID19 research and many fields of basic science research. The center anticipates developing a greater number of mouse (and other animal) models, expanding collaborations, publishing impactful papers, disseminating knowledge and protocols through courses and workshops and attracting additional extramural funding.

Number of mouse models: Currently MGECF generates about 15-20 mouse models per year for investigators. In years one and two, the center will aim to attract additional users and to increase model development to 20-25 models per year. By years four and five, the center plans to develop an average of 30 to 50 models per year.

Number of users: Currently MGECF serves about 35-45 investigators per year. In years one and two, the center will increase the user base to 50-55 users. By year five, we will increase this number to over 75 users per year.

Publications: MGECF has consistently published high impact papers in the genetic engineering field. Some papers published by the UNMC MGECF are regarded as landmark papers in the field (related to Easi-CRISPR and GONAD technologies). The center will continue to be a leader in genetic engineering. Historically, MGECF users publish 10-20 papers per year as a direct result of the research findings they were able to achieve using services received through the core. The center anticipates this number to increase and by year five we expect at least 50 core citations per year.

Education/dissemination of knowledge: The center will organize workshops and courses for students and technicians within and outside of UNMC

Attracting extramural funding: One of the major goals of the center will be to prepare UNMC to attract a multi-million dollar KOMP center grant from NIH, which is described in detail below.

Background: In 2006, the NIH started a large-scale program called Knockout Mouse Project (KOMP) to create knockout mouse models for every gene. Several global organizations then joined efforts to form International Knockout Mouse Consortium (IKMC). The IKMC’s goal was to complete nearly 90% of genes in the first two-phases (of a five-year plan); however, only about 25% of the genes were completed by 2013, the year when CRISPR slowed the project’s workflow. The focus was diverted by the developing CRISPR methods. None of the efforts to create conditional knockout mice were successful until 2017. That was when UNMC’s Easi-CRISPR method drew the world’s attention. Now, Easi-CRISPR has not only been adopted by hundreds of laboratories worldwide but it has also helped steer activities at the KOMP centers. For instance, the KOMP centers had gone back to creating old fashioned knockout mice rather than conditional knockouts (cKO) using the $85M ($28.3M each) funds they received in KOMP2 phase because technologies to create cKO models were not available.

NIH has awarded its KOMP funds (>$250M so far) to only three centers in the nation thus far (Jackson Labs in Maine, University of California Davis, and Baylor College of Medicine in Texas) which were all established over 10 years ago. Now, UNMC has made a significant impact in this field and we’ve drawn the attention of prominent NIH KOMP program officials (from NHGRI and Commons fund). Therefore, phase III funding could be
available to begin a KOMP center at UNMC to fill the noticeable gap in coverage for the Midwest region. The center plans to prepare our organization and facility to ultimately attract KOMP/IMPC program-project funding in the next 5-10 years.

Recently, IMPC released its strategic plan for the next 10 years (2021-2030). It proposes a strong commitment from the global funding agencies to support the development and use of mouse models for understanding and developing therapies against human diseases. [https://www.mousephenotype.org/wp-content/uploads/2019/05/IMPC_Strategy_2021-2030.pdf](https://www.mousephenotype.org/wp-content/uploads/2019/05/IMPC_Strategy_2021-2030.pdf). IMPC lists six major goals for the next decade. The first three utilize CRISPR based technologies, particularly the ones developed at UNMC:

- **IMPC Goal One**: The IMPC will generate 8,000 new null alleles to complete the null resource. All mouse strains will continue to be made available and accessible through open access repositories to the global biomedical research community
- **IMPC Goal Two**: By 2025, the IMPC aims to be generating ~1,000 human coding disease-variant strains per year.
- **IMPC Goal Three**: By 2025, the IMPC aims to be generating around 500 targeted deletions of conserved noncoding elements (CNEs) per year.

**Below is the current geographic distribution of KOMP/IMPC centers in the USA**

![Image showing the geographic distribution of KOMP/IMPC centers in the USA](https://www.mousephenotype.org/wp-content/uploads/2019/05/IMPC_Strategy_2021-2030.pdf)

Several funding opportunities will be available in the next 10 years through IMPC strategic plans. Anticipated funding amount received at each center would be about $25-$30M

There are no KOMP centers in the Midwest: **having developed very powerful technologies like Easi-CRISPR, which is now used at the current 3 centers, UNMC has a unique opportunity to attract a KOMP center grant**

The center will aim to attract IMPC funding in the next 5–10-year period with support from the GEEC-Nebraska center. Currently the staff at UNMC MGE core is the director, two technicians (three FTEs) and a part time administrator. The core offers end-to-end services (including designing, construct generation, microinjection, genotyping up to germ line transmission breeding) while most cores offer mainly microinjection services. Excluding phenotyping and mouse repository services, our core is already like a mini-KOMP center. In the next three to four years, we aim to demonstrate to the NIH that: (a) we have infrastructure and capabilities on par with the existing KOMP centers, and (b) our unique technical capabilities will be particularly useful for the KOMP operations. Our specific plans to achieve this would be: (i) to recruit a couple more technical personnel to the
core to help develop and provide more services, (ii) which will increase the critical mass of technical personnel necessary for competing for a center grant, and (iii) to develop high throughput technologies and tools appropriate for plugging-in to the on-going operations of KOMP. Through the initiation of “GEEC-Nebraska” and expanding the core services and activities, UNMC can be highly competitive in their application for the Phase III KOMP funding.

**Beyond 5-10 years: With the initiation of GEEC-Nebraska, we would like to undertake research in technologies much bigger than CRISPR.** We would like to take our success in developing impactful technologies to the next level. A new fascinating technology on the horizon is Genome Project-Write (GP-W). GP-W is a highly ambitious project where the whole genomes are written new, from scratch. In contrast to CRISPR technology that can “edit” the existing genomes, GP-W “writes” new genomes. The GP-Write project was recently conceived and launched by several prominent genomics technology-developers, led by Dr. George Church at Harvard University. Their ambition is to write the first human genome by 2025. GP-W is still in its infancy; many technologies are yet to be developed to accomplish its goals and fulfill its potential. Currently, the GP-W project is organizing the efforts of hundreds of scientists around the world in developing technologies. Dr. Church regards Dr. Gurumurthy as one of the leading experts in technology development and we plan to be involved with GP-M (M= mouse) in this large scale consortium.

**A. Potential for the Center to contribute to Society and Economic Development**

As stated in the above sections, GEEC-Nebraska will contribute to society and economic development in a number of ways. First, by performing world-class research and innovations, it will develop technologies that will advance scientific fields for multiple research groups (locally, nationally and globally) that are working from the basic research and into translational research areas. Second, it will contribute to the education and knowledge dissemination in teaching, training and technology transfer to students and researchers (technicians and post-doctoral trainees). Third, GEEC-Nebraska is expected to attract major grants to UNMC, such as KOMP, in the next 5-10 year period. Fourth, the center will provide opportunity to increase workforce (of the current core) to 10 fold or more. Fifth, the center will create several hundreds more of custom mouse models useful for scientists working in various fields of research such as cancer, immunology, HIV, hearing, eye diseases, Covid19 and many areas of basic research fields.

Beyond, mouse model generation and impacting several disciplines of basic and translational research, in the long run, establishing GEEC-Nebraska will most likely have a strong impact on local industries and the local economy. For example, CRISPR gene editing technology has been adapted to many areas of biology including agriculture and medicine, particularly for developing disease resistant crops or for combating infectious agents like viruses that infect livestock and humans. Here we provide a few examples of areas that could potentially benefit long-term from the scientific advances made by the GEEC-Nebraska. The first example is Costco’s site in Fremont, Nebraska to raise over 125 million chickens/yr. which is expected to generate business of $1.2B. Deadly viruses like avian influenza can cause catastrophes to such businesses. Previous work done in Dr. Donald Reynolds laboratory at UNL, and by others, in understanding susceptibility differences of avian influenza in chickens versus ducks has shed some light on viral (hemagglutinin) and thrombocyte (cellular-receptor) genes. Further dissecting those molecular mechanisms was not easily possible earlier due to a lack of technologies. Now Easi-CRISPR can be a tool to undertake such studies that can help keep millions of birds healthy, and more importantly to become prepared for the worst—to protect the people of Nebraska, and the world, from public health consequences (because of the cross species infectability of influenza with other species including humans). Some examples of CRISPR developed livestock are cattle with no horns, which helps to avoid dehorning of the newborn calves, and super muscly pigs to produce lean meat. While such works used either the cumbersome traditional methods or the first-generation CRISPR technologies, where gene pieces were simply snipped out, newer technologies such as Easi-CRISPR (that have the capability to precisely insert new gene sequences), can open up an even broader range of possibilities to create designer crops and livestock species. Such accomplishments will undoubtedly change the world and will allow us to be able to feed the expected world population of 8.5B by 2030. Further, some scientists have already developed plants that can
metabolize carbon dioxide two or three times as fast as they otherwise would. Such plants can help solve the climate change issue of greenhouse gas emissions.

B. Adequacy of Resources:
1. Faculty/Staff

   The key faculty needed for implementing the proposed program constitutes five members (Drs. Gurumurthy, Poluektova, Gorantla, Wang and Gendelman), all from the Pharmacology and Experimental Neuroscience. The primary staff of the mouse genome engineering core constitutes two highly skilled technicians Mr. Donald Harms and Mr. Rolen Quadros.

2. Physical Facilities and Equipment

   No additional facilities or equipment needed.

3. Budget Projections [see attached budget tables].


23. *Gurumurthy CB*., Joshi PS, Kurz SG, Ohtsuka M, Quadros RM, Harms DW, Lloyd KC. Validation of simple sequence length polymorphism regions of commonly used mouse strains for marker assisted speed congenics screening. *Int J Genomics:* 2015, 735845.


Appendix B for list of extramural funding received as a direct result of the technologies and/or mouse models developed at MGECF.

<table>
<thead>
<tr>
<th>Grant</th>
<th>Period</th>
<th>Direct cost</th>
<th>Indirect cost</th>
<th>MGECF contribution in the grant proposal that impacted the funding decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>R24OD018546 Larisa P</td>
<td>07/2014-06-2018</td>
<td>$1,943,073</td>
<td>$981,252</td>
<td>Established so called speed congenics method which was the key strength of the proposal to earn this award (Dr. Poluektova can provide more information)</td>
</tr>
<tr>
<td>P30GM110768 Shelley S</td>
<td>09/2014-08/2019</td>
<td>$3,690,000</td>
<td>$1,080,800</td>
<td>Mouse Core section received the best scores (1s &amp; 2s) among 5 other cores, and was crucial for this grant to be funded</td>
</tr>
<tr>
<td>R01NS091220 Woo Y Kim</td>
<td>03/2015-02/2020</td>
<td>$1,665,950</td>
<td>$541,748</td>
<td>Designed &amp; developed mouse models, which served as crucial tools for the Nature Neuroscience paper and for this funding</td>
</tr>
<tr>
<td>R01GM118437 Xu Luo</td>
<td>09/2017-08/2021</td>
<td>~$1,100,000</td>
<td>~$570,000</td>
<td>Designed and developed CRISPR reagents for a number of Apoptosis gene-knockouts in cells</td>
</tr>
<tr>
<td>R01CA210637 Ponnumasy M</td>
<td>06/2017-05/2022</td>
<td>~$1,200,000</td>
<td>~$620,000</td>
<td>Designed and developed mouse models, which served as crucial tools for the Easi-CRISPR paper and for this funding</td>
</tr>
<tr>
<td>R01CA222907 Mark Carlson</td>
<td>04/2018-03/2021</td>
<td>~$1,150,000</td>
<td>~$600,000</td>
<td>Contributed to CRISPR genome editing strategies proposed</td>
</tr>
<tr>
<td>P01CA217798 S Batra Surinder</td>
<td>06/2018-05/2023</td>
<td>~$5,200,000</td>
<td>~$2,800,000</td>
<td>Designed and developed Muc16 conditional knockout model, one of the most difficult genes for which the existing transgenic technologies would not work.</td>
</tr>
<tr>
<td>R35HG010719 Gurumurthy</td>
<td>09/2019-08/2024</td>
<td>~$1,500,000</td>
<td>~$750,000</td>
<td>Development of Modular CRISPR Genome Editing Technologies and Tools</td>
</tr>
<tr>
<td>21GM129559 Gurumurthy</td>
<td>07/2019-06/2022</td>
<td>~$275,000</td>
<td>~$140,000</td>
<td>Engineering Long ssDNA for Genome Editing Applications</td>
</tr>
<tr>
<td>21AI143394 Poluektova/Gurumurthy</td>
<td>04/2019-03/2022</td>
<td>~$425,000</td>
<td>~$220,000</td>
<td>Development of humanized transgenic mice for HBV/HIV co-infection studies</td>
</tr>
<tr>
<td>Total financial benefits to UNMC</td>
<td></td>
<td>$18.3M</td>
<td>$8.4M</td>
<td></td>
</tr>
</tbody>
</table>

Page 19
Appendix C: Local, National and International news headlines about MGECF scientific contributions

- [https://www.unmc.edu/news.cfm?match=24317](https://www.unmc.edu/news.cfm?match=24317)
- [https://www.genengnews.com/gen-articles/genome-editing-explores-new-depths/5924](https://www.genengnews.com/gen-articles/genome-editing-explores-new-depths/5924)
- [https://www.sciencedaily.com/releases/2017/05/170518134954.htm](https://www.sciencedaily.com/releases/2017/05/170518134954.htm)
- [https://www.genomeweb.com/gene-silencinggene-editing/research-team-creates-crispr-strategy-more-efficient-engineering-animal](https://www.genomeweb.com/gene-silencinggene-editing/research-team-creates-crispr-strategy-more-efficient-engineering-animal)
- [https://www.unmc.edu/news.cfm?match=21425](https://www.unmc.edu/news.cfm?match=21425)
- [https://www.spreaker.com/user/9808558/dr-guru-07-17](https://www.spreaker.com/user/9808558/dr-guru-07-17)
May 14, 2021

Re: Letter of support for Genome Editing and Education Center-Nebraska (GEEC-Nebraska)

Dear Members of the NU Board of Regents:

As the chair of the Department of Biochemistry and Molecular Biology at UNMC, College of Medicine, I am writing this letter to support the Genome Editing and Education Center-Nebraska (GEEC-Nebraska) proposal submitted by Dr. Gurumurthy. As we all know, CRISPR genome editing, which received a Nobel prize last year, is a revolutionary technology that has impacted multiple fields of biology including medicine and agriculture. It is a right time now for research and education institutes like UNMC to invest in the CRISPR technology.

Dr. Gurumurthy, while serving as the director of UNMC’s mouse genome engineering core facility has made significant contributions in the field of CRISPR genome editing. Of note, he developed technologies like Easi-CRISPR, which has solved one of the major problems of the first version of CRISPR that could not be used for generating widely usable mouse models.

A large number of research projects in my laboratory use genetically engineered mouse models. Unfortunately, the majority of the genes that my laboratory is interested in are quite complex containing highly repetitive sequences. They are not easy for generating models like conditional knockout and inducible transgenic mice. In fact, we had tried collaborating with other well-known service laboratories including NIH funded KOMP centers for generating the models without success. A few years ago when the CRISPR technology was very new, Dr. Gurumurthy, director of UNMC’s mouse genome engineering core facility, had some elegant ideas of technology development and he was looking for collaborators (that are willing to use his innovative ideas for generating mouse models). He pitched some of those ideas with me for collaboration. His collaboration with my team, combined with his innovative technology development ideas (like Easi-CRISPR) led to several high impact publications. Dr. Gurumurthy and I have published 5 papers together (3 from his laboratory and 2 from mine) which have been already cited highly. His technologies and the mouse models he developed have also helped us in getting NIH grants. Specifically, two of the models he developed were key reagents for receiving one of our program projects and two R01s.

About 2 years ago, Dr. Gurumurthy discussed with me his big idea grant submitted to NU. I was very impressed with the idea because of its high potential of impacting large number of researchers at UN system including students. I am very glad to hear that UNMC is interested in initiating a Center in the theme of genome editing.
I would be delighted to be part of the center serving as an advisory committee member and I strongly support launching of the Center. Please do not hesitate to contact me if you need further information in support of the center application.

Sincerely,

Surinder K. Batra, Ph.D.
Professor & Chair,
Department of Biochemistry and Molecular Biology,
Dr. Alfred and Linda Hartmann Chair of Biochemistry and Molecular Biology
Associate Director for Translational Research, Fred & Pamela Buffett Cancer Center, Eppley Institute for Research in Cancer

Enclosures

cj/SKB
May 8, 2021

Re: Letter of support for the Genome Editing and Education Center-Nebraska (GEEC-Nebraska)

Dear Board and Regents of the University of Nebraska,

Greetings! I write this letter with the greatest of enthusiasm in support of the establishment of the GEEC-Nebraska Center. I have seen the growth, implementation, development and impact of this research first-hand. Indeed, the work moving forward has already seen dozens of new human disease models, propelled research efforts amongst many faculties and have led to new support for many research investigators in our state of Nebraska and globally. To our own University ends we have made the first humanized mouse model of Alzheimer’s disease, helped secure innovative models for the neurological manifestations of HIV/AIDS, developed novel cancer therapies and propelled efforts to find a final cure for a spectrum of inflammatory, infectious and degenerative disease. Other examples include those of Drs Surinder Batra and Donald Reynolds whose pioneering work has led to a greater understanding of the causes and remedies of cancer and viral diseases were supported directly through these works. For the latter, the susceptibility differences of avian influenza in chickens were made possible through studies of the viral (hemagglutinin) and thrombocyte (cellular receptor) genes and aided by this research and its activities. Further dissecting those molecular mechanisms of human diseases was moved forward through the proposed center’s technologies. Easi-CRISPR was one tool now used to generate the science to deal directly with a myriad of current and future potential public health needs and the proposed remedies. I myself see this Center as the future of our biomedical research efforts for the state, the country and the world. Please do not hesitate to contact me if further questions do arise in a favorable judgment in moving this important and timely proposal forward.

Sincerely yours,

Howard E. Gendelman, M.D.
Margaret R. Larson Professor of Internal Medicine and Infectious Diseases
Professor and Chairman, Department of Pharmacology and Experimental Neuroscience
May 11, 2021

To whom it may concern

With great enthusiasm, I am writing this letter to support Dr. Gurumurthy Channabasaviah (Guru)'s efforts to establish the Genome Editing and Education Center - Nebraska. At the outset, I know Guru for over 10 years and I have received unmeasurable support on various aspects of his genomic technological platforms, which really gave a new direction to our research. To exemplify a few of these, Guru was instrumental in generating the T cell receptor transgenic mice for the first time to one heart protein, and his collaboration has led me to secure NIH grants, which otherwise was not possible.

Guru brought to my attention about the big idea grant in 2019 and as I was excited to learn about his vision to develop a center described above, a few of my colleagues joined me to participate in this grant submission. Although, not funded, Guru’s conviction stayed strong and I simply hope that his efforts will pay all of us as Nebraska residents and the research community. I say this with an element of emotion that if all of us as one Nebraska University unit cannot establish a cutting-edge center described above, who else can take such an initiative, is my thinking. Hope that we will not be too late in competing with others in the region or across the country.

I am a strong believer that our actions must speak better than words, and establishing a center is not a joke. Fundamentally, everything must be right, and the most important element is the need to have a committed individual on board to initiate the process. In that direction, I cannot think of any other better individual than Guru. He has a good breadth of expertise in life sciences, most importantly, molecular biology. This includes, cutting edge technologies such as CRISPR genome editing (Easi-CRISPR), i-GONAD, and CRISPR-First: PITT-next. In fact, he is a cofounder of Easi-CRISPR technology that has earned him a remarkable success, and reputation in the research community. I am very pleased to note such an advancement has been made in our own sister concern institute. I begin to wonder, how many people are out there to have ‘all-in one’ category i.e., DVM education, PhD in virology; postdoc training in the mouse genetics and expertise in the cutting-edge technologies, and an MBA degree. I am sure that all of these qualities synergistically help him to establish the proposed centre quite successfully.

Speaking about my own research about the utility of the centre, we focus on the determination of immune mechanisms of non-ischemic heart diseases and their prevention. One such condition is dilated cardiomyopathy (DCM) and ~50% of those affected undergo heart transplantsations due to the lack of effective chemotherapeutic options. The estimated cost of caring for DCM patients is more than $7 billion annually.
in the U.S alone. Serendipitously, a discovery was made that deficiency of taurine, an essential amino acid, can lead to the development of DCM in dogs and cats. However, recent investigations suggest that taurine deficiency can lead to pathological changes that can affect various organs such as, heart, eye, pancreas, liver, kidney and brain, in addition to modulating immune functions. However, it has been a challenge to mechanistically delineate the functionalities of taurine in these tissues involving a complex mixture of cells, since all express receptors for taurine. Thus, we propose to use CRISPR technology to conditionally knockout the taurine-receptor organ-specifically, such that receptor expression (on and off) can be controlled that can serve as an excellent platform to dissect taurine’s biology in human and animal health and disease. Likewise, we propose to use CRISPR-based tools to engineer some of the vaccine candidates that we have recently identified in the prevention of both heart and pancreatic diseases by developing edible vaccines in the plants.

In summary, I am glad to have an opportunity to share my thoughts as to the vision of the proposed centre under the leadership of Guru both in the context of my own research and also other stakeholders of NE. Personally, Guru is a passionate individual and he makes extraordinary commitments, and very selflessly extend his helping hand when needed. I wish him all the very best in his attempts to establish this centre within our own state of Nebraska.

Please do not hesitate to contact me, if you need any additional information for your evaluations.

Sincerely,

Jay Reddy, MVSc., PhD
Professor
Ph: (402) 472 8541
Fax: (402) 472 9690
E-mail: nreddy2@unl.edu
Web: http://jayreddy.unl.edu
May 9, 2021

Re: Letter of support for the Genome Editing and Education Center-Nebraska (GEEC-Nebraska)

Dear Members of the NU Board of Regents:

It is my great pleasure as dean of the UNMC College of Medicine to provide my highest level of endorsement for the establishment of the Genome Editing and Education Center-Nebraska (GEEC-Nebraska), which will function under the direction of Dr. Channabasaviah Gurumurthy, Professor of Pharmacology and Experimental Neuroscience. Genetically engineered animal models of human disease have become a mainstay of research into pathogenesis, prevention, and treatment of these diseases. One of the most highly impactful advances in biomedical research in the last several decades has been the development of clustered regularly interspaced short palindromic repeats (CRISPR)-based genome editing technologies. This technology allows targeted and rapid editing of genes at both a cellular and whole animal level. Indeed, CRISPR is being explored as a treatment of human genetic diseases such as beta thalassemia and sickle cell anemia. This technology has already begun to revolutionize medicine.

This new center will result from a transformation of UNMC’s Mouse Genome Engineering Core Facility (MGECF) into an Academic Multidisciplinary Research Center. It will utilize the and build of the unique accomplishments that director and other members of the proposed center have already achieved. Most notable has been the development of novel technology that enhances the ability to utilize CRISPR, including Efficient Additions with ssDNA inserts-CRISPR (Easi-CRISPR) and Genome editing by Oviductal Nucleic Acids Delivery (i-GONAD) methods. These approaches are both major breakthroughs transgenic technologies. These UNMC approaches are now being utilized by over one hundred laboratories across the globe.

The research to date at UNMC has already resulted in $25M in grant funding, including the highly prestigious outstanding investigator award from the NHGRI to the director of the proposed center, Dr. Gurumurthy. As detailed in the application, numerous current and potential users and members of the center, both within and outside UNMC, have already been identified. Thus, there is no question that the timing is right for the establishment of the center to further and support the use of CRISPR technology and development of animal models of disease at UNMC.

In summary, CRISPR technology is one of the most impactful advances in biomedicine in decades. We are fortunate at UNMC to have faculty and staff who have demonstrated their abilities to lead the field in the sue of CRISPR technology. It is timely and important for the advance of gene-based science at UNMC that the center proposed move forward. Therefore, this application has my full support and I will work with its leadership to assure its success.

Sincerely,

Bradley E. Britigan, M.D.
Stokes-Shackleford Professor and Dean
May 6, 2021

Channabasavaiah Gurumurthy, MVSC, PhD, Exec. MBA
Director, Mouse Genome Engineering Core Facility
Durham Research Center II 1030/8187
985930 Nebraska Medical Center
Omaha, NE 68198-5930

RE: Genome Editing and Education Center-Nebraska

Dear Dr. Gurumurthy:

Greetings! It is my pleasure to write this letter of support for the Genome Editing and Education Center-Nebraska. The Genome Editing and Education Center-Nebraska has a very well-devised plan for success, which I endorse and support. One of the goals in creating this Center is to further develop the infrastructure, services, resources, educational opportunities, and community relationships for not only the University of Nebraska System, but the state as a whole. I can attest that my campus will benefit from such a Center. At the University of Nebraska at Kearney (UNK), teaching and education are paramount. We utilize the research setting as a teaching and mentoring tool for students, as well as our own research interests. I have a strong connection with UNMC, especially in terms of education and training and for this Center, I would be happy to serve as a UNK campus liaison or in any capacity you see fit. I am so excited, as are a number of faculty and students at UNK, especially after the talk you gave to us recently. It was such an honor and pleasure for us to have you as our 7th Distinguished Speaker for Doug Lund DNA Day. Who would have thought 7 years after meeting Dr. Mario Capecchi at this same event that you would give a talk that rivaled the Nobel prize laureate! The technology you have developed is fantastic. In fact, I would like to use EASI-CRISPR in both my work with fruit flies and the immune genes underlying aging, as well as in the cell culture work to study the RNA virus we found in Drosophila melanogaster, Nora virus. In addition, there are a number of faculty in the Biology department who are interested in using EASI-CRISPR for questions dealing with microbes, such as Staphylococcus aureus, Rickettsia, mouse models for allergy, mouse models for diabetes, and a whole host of other questions.

In terms of educational experiences, we would like to have you come and lecture to in Genetics course, Molecular Biology course, Bioethics course, as well as give a seminar for our Molecular Biology class that is offered each semester. Because this technology is at the forefront of research, I, as an officer of our award winning local chapter of Sigma Xi – The Scientific Research Honorary, would like to invite you to give a talk to the lay public on this topic. These talks will help to engage faculty, students, and the lay public in the technology and the Center, as well as the collaboration between UNK and UNMC.
Another goal that can be addressed at UNK through the Center is to expand professional development activities to cultivate a cadre of successful investigators who are prepared to develop and implement innovative tools and approaches to address biomedical issues pertinent to all areas. In addition, we have amply demonstrated at UNK the ability to create an environment that fosters innovative multidisciplinary (EPSCOR), multisite and cross-entity (e.g., public-private) partnerships, IDEa (national CTR, COBRE, INBRE, ICPCTN, SEPA) and other national (e.g., CTSA) collaborations. I have been a member of the NE-INBRE program since 2003 and serve as the Institutional Coordinator for UNK for that program, as well as being the Campus coordinator and Steering committee member for the UNMC Great Plains Center in Translational Research (GP-CTR). I commend you for your efforts to create a Center that will further establish areas of collaboration across the NU system.

In closing, on behalf of the UNK campus, we wholeheartedly support your application to create the Genome Editing and Education Center-Nebraska. We have created cross campus and cross region collaborations that are invaluable. In addition, the educational opportunities that you are willing to provide us and our students are invaluable. As stated previously, I will gladly serve in any capacity you deem necessary to aid in fostering a connection between the Center, UNK, NE-INBRE and the GP-CTR. I am highly supportive of the creation of the Genome Editing and Education Center-Nebraska. If I can be of any help in any way, please do not hesitate to contact me.

Sincerely,

Kim Carlson
Professor & Assistant Chair
Biology Department
University of Nebraska at Kearney
Kearney, NE 68849
carlsonka1@unk.edu
308-865-1554
May 13, 2021

Nebraska University Board of Regents
University of Nebraska–Lincoln
Lincoln, NE 68583-0907

Re: Letter of support for the Genome Editing and Education Center-Nebraska (GEEC-Nebraska)

Dear Members of the NU Board of Regents:

It is my great pleasure to provide a letter of support for the establishment of the Genome Editing and Education Center-Nebraska (GEEC-Nebraska). I currently serve as the Stokes-Shackleford Professor and Chair of the Department of Cellular and Integrative Physiology and Director of the Center for Heart and Vascular Research at the University of Nebraska Medical Center.

I first came to know about the outstanding contributions made by UNMC in the CRISPR field, when I was interviewing at UNMC in 2018 and met with Dr. Gurumurthy. I also follow the literature and conversations on Twitter regarding CRISPR technology and can see that it has revolutionized biomedical research. It has impacted translational research as a gene therapy tool in less than 6 years from its invention, which is truly remarkable. Dr. Channabasavaiah Gurumurthy, Director of GEEC-Nebraska, has made significant contributions to CRISPR technology. It is clear this is a passion for him. The improvements he has made, such as Easi-CRISPR and GONAD technologies, have drawn worldwide attention to UNMC in a very positive way. Dr. Gurumurthy has published in over two dozen high-impact papers in just the past several years on technology development and mouse models generated. He has also earned UNMC over $25M and has attracted dozens of collaborators nationally and internationally.

As an advisory committee member and a user of mouse models, the CRISPR technology mouse models, and technologies like CRISPR are highly valuable and now almost indispensable for a multitude of research projects. When Dr. Gurumurthy mentioned his big idea grant that was submitted to NU in early 2019, I was already impressed with his work and its potential benefits to the UN research community. I am now thrilled to hear that UNMC is interested in investing in this area by launching a Center. A designated center for genome editing, and converting it from the existing mouse genome engineering core would help us to conduct the best research possible.

In summary, I strongly support the launching of a center in the area of genome editing. Dr. Gurumurthy possesses the attributes and expertise in establishing the Genome Editing and Education Center-Nebraska (GEEC-Nebraska). Let me know if I can provide any additional information.

Sincerely,

Merry L. Lindsey, Ph.D.
Chair and Stokes-Shackleford Professor
Department of Cellular and Integrative Physiology
Director, Center for Heart and Vascular Research
MLL:cb
Subject: Letter of support for the proposal of Genome Editing and Education Center-Nebraska (GEEC-Nebraska)

Dear Members of the NU Board of Regents:

It is my pleasure to provide this letter of support for the establishment of the Genome Editing and Education Center-Nebraska (GEEC-Nebraska) which is being organized by my long-term collaborator, Dr. C.B. Gurumurthy.

Dr. Gurumurthy has developed some impactful CRISPR technologies while a faculty member at UNMC, such as Easi-CRISPR and GONAD. These technologies have been widely popular and have drawn worldwide attention to our university. In general, CRISPR has revolutionized biomedical research, changing the whole field of gene therapy in the 6 years since its initial description.

Dr. Gurumurthy also is Director of the UNMC Mouse Genome Engineering Core Facility. The research collaborations and services available through this Core Facility are exceptional and have contributed to the success of dozens of researchers at UNMC and elsewhere.

I have known and worked with Dr. Gurumurthy for over five years now. Together we have been developing several novel transgenic swine for use in pancreatic cancer and breast cancer research (Dr. Gurumurthy’s expertise is applicable to numerous species, not just mice). We have also prepared and submitted multiple federal grants together, and have several manuscripts in preparation. Dr. Gurumurthy currently is a Co-Investigator on our NCI R01 award to develop a porcine model of pancreatic cancer.

When Dr. Gurumurthy mentioned his Big Idea proposal on a gene editing center to NU in early 2019, I was already impressed with this concept and the potentially enormous benefits to the NU research community. I am thrilled to hear that UNMC is interested in initiating the Genome Editing and Education Center. This should enable Dr. Gurumurthy’s team to deliver the best possible service to NU investigators.

It is my privilege to be associated with this Center, both as an end user and as an advisory committee member. I strongly support the establishment of GEEC. I am happy to provide further information in support of the Center’s application as needed.

Mark A. Carlson, MD, FACS
Professor, Department of Surgery
Director, Center for Advanced Surgical Technology (CAST)
University of Nebraska Medical Center
Office: 402-995-5371; Mobile: 402-650-4219
Assistant: Sarah Dawson (sarah.dawson@unmc.edu; 402-559-4581)
21 May 2021

Dear Dr. C.B. Gurumurthy:

I am writing in support of the concept you’ve described as the Genome Editing and Education Center-Nebraska (GEEC-NE).

As a tenured faculty member in the UNO Department of Biology, I believe this Center would be a beneficial resource to our nearly 1000 Biology students. As the faculty academic coordinator for the Molecular and Biomedical Biology (MBB) B.S. degree program, I could envision that GEEC-NE could support MBB students through the development of hands-on learning modules which could be incorporated into the senior-level Molecular Genetics course.

Further, UNO Biology faculty and students could work together to generate e-learning modules for grades 7-12 across the state, in conjunction with the already established uBEATS STEM e-learning program. Partnering with the strong STEM outreach leadership experience of UNO, GEEC-NE could leverage such training modules beyond the state through the STEM TRAIL center and lead the nation in learning more about and encouraging discussion on gene editing.

I’m happy to continue to work with you as this Center is further developed.

Sincerely,

Paul H. Davis, Ph.D.
Associate Professor of Biology
University of Nebraska at Omaha
pdavis@unomaha.edu
402-554-3379
### TABLE 1: PROJECTED EXPENSES - NEW ORGANIZATIONAL UNIT

**UNMC Genome Editing and Education Center - Nebraska**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Faculty</td>
<td>0.10</td>
<td>$20,000</td>
<td>$100,000</td>
<td>$100,000</td>
<td>$100,000</td>
<td>$100,000</td>
<td>$420,000</td>
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<td>Non-teaching Staff: Professional</td>
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<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$210,000</td>
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<td>$5,000</td>
<td>$21,000</td>
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<tr>
<td>Non-teaching Staff: Support</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Subtotal</strong></td>
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<td>$155,000</td>
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<tr>
<td>Operating</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>General Operating</td>
<td></td>
<td>$60,000</td>
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<td>$80,000</td>
<td>$90,000</td>
<td>$100,000</td>
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<tr>
<td>Equipment</td>
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<td></td>
<td>$0</td>
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<tr>
<td>New or renovated space</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0</td>
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<tr>
<td>Library/Information Resources</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0</td>
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<tr>
<td>Other</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td>$91,000</td>
<td>$225,000</td>
<td>$235,000</td>
<td>$245,000</td>
<td>$255,000</td>
<td>$1,051,000</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td></td>
<td>$240,000</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$2,250,000</td>
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**One module close to DRC II, room 1014 is requested.**

### TABLE 2: PROJECTED REVENUES - NEW ORGANIZATIONAL UNIT

**UNMC Genome Editing and Education Center - Nebraska**

<table>
<thead>
<tr>
<th>Existing Funds¹</th>
<th>(FY2020-21)</th>
<th>(FY2021-22)</th>
<th>(FY2022-23)</th>
<th>(FY2023-24)</th>
<th>(FY2024-25)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extramural grants</td>
<td>$40,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$240,000</td>
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<tr>
<td>UNMC internal support</td>
<td>$40,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$240,000</td>
</tr>
<tr>
<td><strong>Required New Public Funds</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>1. State Funds</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>2. Local Funds</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Tuition and Fees</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Other Funding</strong></td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>1 Revenue from core services</td>
<td>$11,000</td>
<td>$105,000</td>
<td>$105,000</td>
<td>$105,000</td>
<td>$105,000</td>
<td>$431,000</td>
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<tr>
<td>2 Extramural grants</td>
<td>$0</td>
<td>$20,000</td>
<td>$30,000</td>
<td>$40,000</td>
<td>$50,000</td>
<td>$140,000</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>$91,000</td>
<td>$225,000</td>
<td>$235,000</td>
<td>$245,000</td>
<td>$255,000</td>
<td>$1,051,000</td>
</tr>
</tbody>
</table>

¹ The funds are from Dr. Gurumurthy's R35 NIH grant (34-5160-2132-001) and from institutional start ups for his research. Dr. Gurumurthy has been provided $550,000 over 2 years ($275,000 from the Vice Chancellor for Research Office and $275,000 from the Dean of the College of Medicine).
TO: The Board of Regents

Academic Affairs

MEETING DATE: August 13, 2021

SUBJECT: Honorary Degree

RECOMMENDED ACTION: Approve the award of Honorary Degree [Please note: this item may be voted on after the Closed Session]

PREVIOUS ACTION: The Board of Regents approved the current policies for awards found in the University of Nebraska Board of Regents Policies under RP-1.5.1 through RP-1.5.5.

EXPLANATION: None

SPONSOR: Honorary Degrees Committee
           Board of Regents

RECOMMENDED: ______________________________
               Walter E. Carter, President
               University of Nebraska

DATE: July 29, 2021
TO: The Board of Regents

Addendum XI-B-1

Business and Finance Committee

MEETING DATE: August 13, 2021

SUBJECT: Strategic supplier agreement for IT hardware for the University of Nebraska

RECOMMENDED ACTION: Approve agreement designating CDWG as strategic supplier of IT hardware for University of Nebraska system

PREVIOUS ACTION: None

EXPLANATION: In accordance with a formal RFP bid process, and subject to Board of Regents approval, CDWG is awarded a contract as the strategic supplier for IT hardware.

The contract, effective September 1, 2021, has a term of three (3) years, with options to renew for five (5) additional 1-year periods.

This item has been reviewed by the Business and Finance Committee.

PROJECT COST: Estimated at $9.4 million annually

SOURCE OF FUNDS: State Funds and Student Fees

SPONSOR: Bret Blackman
Vice President for IT and CIO

Chris Kabourek
Vice President for Business and Finance | CFO

RECOMMENDED: Walter E. Carter, President
University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents             Addendum XI-B-2

Business and Finance Committee

MEETING DATE: August 13, 2021

SUBJECT: Revisions to the Kiewit Hall project at the University of Nebraska-Lincoln (UNL)

RECOMMENDED ACTION: Approve revisions to the Kiewit Hall project and receive report from Business and Finance Committee regarding Intermediate Design Review

PREVIOUS ACTION: October 25, 2019- The Board of Regents approved the Program Statement for New College of Engineering Building at UNL.

December 5, 2019- The Board of Regents approved the naming of the new College of Engineering Building “Kiewit Hall” at UNL.

April 9, 2021- The Board of Regents approved a Capital Project Budget Increase for Kiewit Hall at UNL.

June 25, 2021- The Board of Regents approved and authorized execution of standard form Guaranteed Maximum Price contract amendments for Kiewit Hall at UNL.

EXPLANATION: The Program Statement for Kiewit Hall at UNL was approved by the Board of Regents on October 25, 2019. Since approval, the global pandemic has resulted in a multitude of unforeseen impacts to the market and, as such, a budget increase of eighteen million dollars is requested for a total budget of $115 million.

In addition, this submittal will constitute the report of the Business and Finance Committee approving the project Intermediate Design and fixing the scope and budget for the project.

This item has been approved by the Business and Finance Committee.

<table>
<thead>
<tr>
<th>PROJECT COST:</th>
<th>Original</th>
<th>Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Project Budget</td>
<td>$97,000,000</td>
<td>$115,000,000</td>
</tr>
</tbody>
</table>

| SOURCES OF FUNDS: | Private funds |

| SPONSOR: | William J. Nunez  
Vice Chancellor for Business and Finance |

| RECOMMENDED: | Ronnie D. Green, Chancellor  
University of Nebraska-Lincoln |

DATE: July 16, 2021
TO: The Board of Regents  Addendum XI-C-1

Executive Committee

MEETING DATE: August 13, 2021

SUBJECT: Amendment of the Standing Rules of the Board of Regents

RECOMMENDED ACTION: Approve the proposed amendments of the Standing Rules of the Board of Regents

PREVIOUS ACTION: June 25, 2021 – The proposed amendments of the Standing Rules were presented for information only in accordance with the requirements of Section 7.2 of the Standing Rules and Section 1.11 of the Bylaws of the Board of Regents.

October 8, 2020 – The Standing Rules were last amended.

EXPLANATION: On April 21, 2021, Governor Ricketts approved LB83, which permits public entities subject to the Nebraska Open Meetings Act to hold up to half of their meetings by virtual conferencing during a calendar year. The attached amendments set forth a process by which Regents may request virtual attendance at a meeting of the Board of Regents.

SPONSOR: Executive Committee
Board of Regents

| RECOMMENDED: Walter E. Carter, President
University of Nebraska

DATE: July 29, 2021
SECTION 2. Meetings of the Board.

2.1 **Annual Meeting.** The Board shall hold its annual meeting as required by Section 1.4 of its Bylaws.

2.2 **Additional Meetings.** The Board may hold such additional meetings during the year as it deems necessary, either as scheduled meetings or as emergency meetings called at the request of the Chairperson or by any two voting members of the Board.

2.3 **Location of Meetings.** The Board shall normally meet in the Boardroom at Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska. The Board may, however, meet at other locations as desired.

2.4 **Notice for Annual and Scheduled Meetings.** Public notice of each annual meeting and any scheduled meeting shall be given at least five (5) days prior to the meeting; provided, that public notice of any item scheduled for public hearing before the Board shall be given at least ten (10) days prior to the date of the hearing. The Corporation Secretary shall maintain a list of news media which have requested advance notification of Board meetings and shall provide advance notification to them of the time and place of each annual and scheduled meeting and the agenda for any such meeting.

2.5 **Notice of Emergency Meetings.** When it is necessary to hold an emergency meeting without the advance public notice provided in Section 2.4 of these Rules, the Corporation Secretary shall make a reasonable effort to contact those members of the news media who have requested notification of Board meetings and advise them of the agenda for the emergency meeting.

2.6 **Virtual Meetings.** In the absence of an emergency declared by the Governor, meetings of the Board ordinarily will be conducted in person. Upon written application to and approval by the Chairperson, individual Board members may attend by virtual conferencing. Applications for virtual attendance should be for good cause, such as sickness, military orders, required business travel, or other essential reasons and shall be submitted to the Chairperson at least ten (10) days prior to the date of the meeting at which virtual attendance is requested. Unless pursuant to an emergency declared by the Governor, no more than one-half of the meetings of the Board during any calendar year will be conducted with one or more voting members of the Board in virtual attendance.

2.7 **Scheduling and General Conduct of Meetings.** All meetings of the Board shall be scheduled and conducted in ways which are consistent with the Bylaws of the Board, these Rules, and the Nebraska Open Meetings Act, Neb. Rev. Stat. §§ 84-1408 to 84-1414.
TO: The Board of Regents

Executive Committee

MEETING DATE: August 13, 2021

SUBJECT: President’s Performance-Based Merit Pay

RECOMMENDED ACTION: Approve Grant of Performance-Based Merit Pay to President Carter for FY2020-21

PREVIOUS ACTION: December 19, 2019 – The Board of Regents approved the Revised Contract of Employment for Walter E. Carter, Jr. as President of the University of Nebraska.

EXPLANATION: Section 2(c) of President Carter’s Contract of Employment provides that he shall be eligible for performance-based merit pay of up to fifteen percent (15%) of his Base Salary at the end of each full year of employment.

President Carter’s Performance-Based Merit Pay for FY2020-21 is based on a qualitative score relating his performance to the Core Leadership Pillars; and a quantitative score relating his performance to certain deliverables. The summary below details the calculation of President Carter’s Performance-Based Merit Pay.

<table>
<thead>
<tr>
<th>Period</th>
<th>Score</th>
<th>Weight</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative Score</td>
<td>CY2020</td>
<td>90.56%</td>
<td>0.5</td>
</tr>
<tr>
<td>Quantitative Score</td>
<td>FY2020-21</td>
<td>100.00%</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>95.28%</strong></td>
</tr>
</tbody>
</table>

Performance-Based Merit Pay Guidelines

- Total Score 90% or greater: 100% of merit pool paid out
- Total Score between 80 and 89.99%: 75% of merit pool paid out
- Total Score between 70 and 79.99%: 50% of merit pool paid out
- Total Score 69.99% or below: 0% of merit pool paid out

Eligible Performance-Based Merit Pay

- Current Base Salary: $934,600
- Performance-Based Merit Pay Pool (15% of base): $140,190
- Performance Score: 95.28%
- % of Merit Pool Granted: 100%

**Performance-Based Merit Pay** $140,190

Approval of this agenda item grants President Carter payment of the full fifteen percent (15%) Performance-Based Merit Pay Pool for FY2020-21.

SOURCE OF FUNDS: General Funds/Cash Funds

SPONSOR: Paul Kenney
Chair, Board of Regents

DATE: July 29, 2021
TO: The Board of Regents
Addendum XI-C-3

Executive Committee

FROM: August 13, 2021

SUBJECT: Request for Approval of Paid Service on Outside Board of Directors

RECOMMENDED ACTION: Approve request from President Carter, in accordance with his employment contract and the Bylaws of the Board of Regents of the University of Nebraska, to serve on the board of directors of an outside organization.

PREVIOUS ACTION: None

EXPLANATION: Section 11 of President Carter’s Contract of Employment requires approval by the Board of Regents prior to his service “…as a compensated member of the board of directors of any for-profit organization.” Section 3.4.5 of the Bylaws of the Board of Regents of the University of Nebraska states that full-time professional staff members employed by the University are encouraged to engage in outside professional employment or activities, provided the outside employment does not interfere with the employee’s regular duties at the University or represent a conflict of interest. Section 3.4.5 further requires Board of Regents approval, if professional services may be provided over a period lasting more than two years.

President Carter has been invited to serve as a director and requests the Board of Regents approve his service on the board of “TeraWulf, Inc.” with headquarters in Easton, Maryland. If this item is adopted, approval for this appointment shall remain in effect for so long as President Carter serves continuously without a break or separation from the TeraWulf board.

SPONSOR: Executive Committee
Board of Regents

RECOMMENDED: Paul Kenney
Chair, Board of Regents

DATE: August 4, 2021
D. REPORTS

1. Expedited Approval of French Graduate Certificate, Addendum XI-D-1
2. Expedited Approval of Machine Learning Graduate Certificate, Addendum XI-D-2
3. Expedited Approval of Sociology Graduate Certificate, Addendum XI-D-3
4. Expedited Approval of Teaching Spanish to Heritage/Bilingual Learners Graduate Certificate, Addendum XI-D-4
5. Approve the correct naming of The History of Teaching Tools Exhibit within the Wigton Heritage Center, Addendum XI-D-5
6. Bids and Contracts, Addendum XI-D-6
7. President’s FY2020-21 Self-assessment, Addendum XI-D-7
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Expedited Approval of the French Graduate Certificate in the Department of Foreign Languages and Literature in the College of Arts and Sciences at the University of Nebraska at Omaha (UNO)

RECOMMENDED ACTION: Report

PREVIOUS ACTIONS: September 16, 2005 – The Board approved the creation of the Master of Arts in Language Teaching (MALT) at UNO.

July 15, 2000 – The Board delegated to the President authority to give expedited approval to certain graduate certificates that were based on existing graduate courses. Such an arrangement allows the University to respond in a timely fashion to the needs and demands of our students and Nebraska businesses.

EXPLANATION: The proposed UNO French Graduate Certificate is an online and in-person 18-credit hour certificate program designed to provide intensive language proficiency training in French, including courses in French/Francophone cultures and literatures. For students interested in language teaching, six of the 18 credits would be devoted to language teaching pedagogy. All coursework will partially satisfy requirements toward a Master of Arts in Language Teaching degree, and completion of the Certificate will allow high school teachers to be eligible to teach dual-enrollment classes through UNO or other Universities.

This proposal has been reviewed by the Council of Academic Officers; it also has been reported to the Academic Affairs Committee.

PROGRAM COST: $0 (No new faculty/staff resources will be required.)

SOURCE OF FUNDS: Not applicable

SPONSOR: Jeffrey P. Gold, MD
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

APPROVED: ______________________________________
Walter E. Carter, President
University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents

Addendum XI-D-2

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Expedited Approval of the Machine Learning Graduate Certificate in the Department of Computer Science in the College of Information Science and Technology at the University of Nebraska at Omaha (UNO)

RECOMMENDED ACTION: Report

PREVIOUS ACTIONS:

July 15, 2000 – The Board delegated to the President authority to give expedited approval to certain graduate certificates that were based on existing graduate courses. Such an arrangement allows the University to respond in a timely fashion to the needs and demands of our students and Nebraska businesses.

July 21, 1990 – The Board approved the creation of the Master of Arts/Master of Science degree program in Computer Science at UNO.

EXPLANATION:

The proposed UNO Machine Learning Graduate Certificate is an online and in-person 12-credit hour certificate program designed to provide students with skills in the fields of artificial intelligence and database systems. For students without a computing background, a course in Python (a computing language) and a course covering the fundamentals of data structures would be recommended prior to starting the program.

The proposed graduate certificate will prepare students for careers across multiple industries. Employment opportunities would include being hired as data scientists, machine learning algorithm designers, deep learning systems engineers, computer vision experts, software and application developers, and other machine-learning related professionals. All coursework will partially satisfy requirements towards a Master of Science in Computer Science.

This proposal has been reviewed by the Council of Academic Officers; it also has been reported to the Academic Affairs Committee.

PROGRAM COST: $0 (No new faculty/staff resources will be required.)

SOURCE OF FUNDS: Not applicable

SPONSOR:

Jeffrey P. Gold, MD
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

APPROVED: Walter E. Carter, President
University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents

Addendum XI-D-3

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Expedited Approval of the Sociology Graduate Certificate in the Department of Sociology and Anthropology in the College of Arts and Sciences at the University of Nebraska at Omaha (UNO)

RECOMMENDED ACTION: Report

PREVIOUS ACTIONS: July 15, 2000 – The Board delegated to the President authority to give expedited approval to certain graduate certificates that were based on existing graduate courses. Such an arrangement allows the University to respond in a timely fashion to the needs and demands of our students and Nebraska businesses.

The Master of Arts (MA) in Sociology at UNO was established prior to modern records of Board approvals.

EXPLANATION: The proposed UNO Sociology Graduate Certificate is an online and in-person 18-credit hour certificate program designed to provide high school teachers with the professional training and formal qualifications needed to teach Dual Enrollment college courses in Sociology. The Certificate also is designed to enhance the skills of individuals working in social service/non-profit organizations. All coursework will partially satisfy requirements towards a Master of Arts degree in Sociology.

This proposal has been reviewed by the Council of Academic Officers; it also has been reported to the Academic Affairs Committee.

PROGRAM COST: $0 (No new faculty/staff resources will be required.)

SOURCE OF FUNDS: Not applicable

SPONSOR: Jeffrey P. Gold, MD
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

APPROVED: Walter E. Carter, President
University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents

Academic Affairs Committee

MEETING DATE: August 13, 2021

SUBJECT: Expedited Approval of the Teaching Spanish to Heritage/Bilingual Learners Graduate Certificate in the Department of Foreign Language and Literature in the College of Arts and Sciences at the University of Nebraska at Omaha (UNO)

RECOMMENDED ACTION: Report

PREVIOUS ACTIONS:
- September 16, 2005 – The Board approved the creation of the Master of Arts in Language Teaching (MALT) at UNO
- July 15, 2000 – The Board delegated to the President authority to give expedited approval to certain graduate certificates that were based on existing graduate courses. Such an arrangement allows the University to respond in a timely fashion to the needs and demands of our students and Nebraska businesses.

EXPLANATION:
The proposed UNO Teaching Spanish to Heritage/Bilingual Learners Graduate Certificate is an online 18-credit hour certificate program. The curriculum is designed to provide K-12 schoolteachers and administrators sociolinguistic and pedagogical (theory and practice) expertise relevant to the intricacies and challenges of teaching Spanish to bilingual learners (children who are bilingual) and heritage learners (bilingual adults). The Certificate also is designed for those seeking to teach heritage language courses in institutions of higher education. All coursework will partially satisfy requirements towards a Master of Arts in Language Teaching with a concentration in Spanish.

This proposal has been reviewed by the Council of Academic Officers; it also has been reported to the Academic Affairs Committee.

PROGRAM COST: $0 (No new faculty/staff resources will be required.)

SOURCE OF FUNDS: Not applicable

SPONSOR: Jeffrey P. Gold, MD
Chancellor, University of Nebraska Medical Center
Executive Vice President and Provost, University of Nebraska

APPROVED: Walter E. Carter, President
University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents                              Addendum XI-D-5

Business and Finance Committee

MEETING DATE: August 13, 2021

SUBJECT: Approve the corrected naming of The History of Teaching Tools Exhibit within the Wigton Heritage Center at the University of Nebraska Medical pursuant to the Board of Regents Policy RP-6.2.7.3.b.

RECOMMENDED ACTION: Approve the correct naming of The History of Teaching Tools Exhibit within the Wigton Heritage Center

PREVIOUS ACTION: June 25, 2021 - Approval of the exhibit naming as “The History of Teaching Tools Exhibit” within the Wigton Heritage Center

February 12, 2021 - Approval of the Rare Book Gallery within the Wigton Heritage Center

EXPLANATION: President Carter and Chancellor Gold have approved the naming, “In recognition of Robert S. Wigton, MD, Given by Vincent L. Hoellerich, MD, Class of 1983”, within the Wigton Heritage Center.

The exhibit, The History of Teaching Tools Exhibit, should have properly been named “In recognition of Robert S. Wigton, MD, Given by Vincent L. Hoellerich, MD, Class of 1983”.

This item has been reviewed by the Business and Finance Committee.

SPONSOR: Douglas A. Ewald

Vice Chancellor for Business, Finance and Business Development

RECOMMENDED: ________________________________

Jeffrey P. Gold, Chancellor

University of Nebraska Medical Center

____________________________________________

Walter E. Carter, President

University of Nebraska

DATE: July 16, 2021
TO: The Board of Regents  
Addendum XI-D-6  
Business and Finance Committee

MEETING DATE: August 13, 2021

SUBJECT: Report of Bids and Contracts

RECOMMENDED ACTION: Report

PREVIOUS ACTION: None

EXPLANATION: The attached report is a summary of bids and contracts as provided by the campuses pursuant to Section 6.4 of the Bylaws of the Board of Regents of the University of Nebraska for the period ended June 14, 2021.

The report outlines the following: type of action; campus; description and use of the product, service, or project; funding source; approved budget amount; contract amount; contractor or vendor; and a bid review or bid explanation if the low responsible bid was not accepted.

APPROVED: Chris J. Kabourek  
Vice President for Business and Finance | CFO

DATE: July 16, 2021
Contracts over $1,000,000 April 17, 2021 to June 14, 2021
NU Facilities, Planning and Capital Programs (UNK, UNL, UNMC, UNO)
Business and Finance Report – Bids and Contracts

<table>
<thead>
<tr>
<th>Type of Action</th>
<th>Campus</th>
<th>Description</th>
<th>Funding Source</th>
<th>Approved Budget Amount*</th>
<th>Contract Amount</th>
<th>Contractor / Vendor</th>
<th>Bid Review or Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>UNL</td>
<td>(UNL) Outdoor Track Replacement</td>
<td>Foundation</td>
<td>$13,200,000</td>
<td>$7,299,210</td>
<td>Nemaha Landscape Construction</td>
<td>Low Bid Construction</td>
</tr>
<tr>
<td>Construction</td>
<td>UNL</td>
<td>Barkley Memorial Center(A087) Expansion and Renovation</td>
<td>Foundation</td>
<td>$7,075,000</td>
<td>$7,047,686</td>
<td>Beckenhauer Construction Inc</td>
<td>CMR GMP**</td>
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<tr>
<td>Construction</td>
<td>UNL</td>
<td>Selleck Quad Building L(C342) Dining Renovation</td>
<td>Bonds</td>
<td>$1,458,300</td>
<td>$1,457,000</td>
<td>Cheever Construction Company</td>
<td>Low Bid Construction</td>
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<tr>
<td>Construction</td>
<td>UNO</td>
<td>Health and Kinesiology(U014) RM123 Replace pool bulkheads</td>
<td>Bonds</td>
<td>$1,458,300</td>
<td>$1,359,738</td>
<td>MECO HENNE Contracting Inc.</td>
<td>Low Bid Construction</td>
</tr>
<tr>
<td>Contract</td>
<td>UNK</td>
<td>Installation of a new audio system in the Health &amp; Sports arena</td>
<td>State Aided Project Funds</td>
<td>$1,100,000</td>
<td>$1,014,498.33</td>
<td>AVI Systems, Inc.</td>
<td>Low Responsible Bid</td>
</tr>
<tr>
<td>Construction</td>
<td>UNK</td>
<td>Interior remodel of the food service area of the Nebraskan Student Union</td>
<td>Facility Operating and Reserve Funds</td>
<td>$1,417,400</td>
<td>$1,417,400</td>
<td>Sampson Construction Co., Inc.</td>
<td>Low Responsible Bid</td>
</tr>
</tbody>
</table>

*Approved budget amount represents the entirety of the applicable budget lines.

** GMP = Guaranteed Maximum Price; entry is a GMP amendment to a prior contract.
TO: The Board of Regents

MEETING DATE: August 13, 2021

SUBJECT: President’s FY2020-21 Year-in-Review

RECOMMENDED ACTION: Report

PREVIOUS ACTION: August 13, 2021 – The Board of Regents will consider approving grant of performance-based merit pay to President Carter for FY2020-21.

December 19, 2019 – The Board of Regents approved the Revised Contract of Employment for Walter E. Carter, Jr. as President of the University of Nebraska.

EXPLANATION: The attached report outlines the President’s performance against eight quantitative metrics set for FY2020-21.

RECOMMENDED: Walter E. Carter
President

DATE: July 29, 2021
MEMORANDUM

DATE: July 29, 2021

TO: Board of Regents

FROM: Ted Carter, President

RE: FY2020-21 Year-in-Review

As I reflect on the past fiscal year, I am filled with energy and optimism about the future of the University of Nebraska System. We are emerging from a global pandemic in a position of strength—a great credit to your leadership and the incredible efforts of the chancellors, vice presidents, and leaders across our university. Earlier this year, you set eight quantitative metrics to measure my performance; below, you will find a brief narrative on each metric.

Public Five-Year Strategy and Set Associated Metrics
In August 2020, we published the “University of Nebraska Five-Year Strategy,” a living document that gives us a clear path forward, articulates our priorities and offers specific targets against which we will measure our progress. I am pleased to share that all thirty strategies have either been implemented or are in process. Attached to this memorandum is a dashboard that indicates the status of each strategy.

Launch 2021 Capital Repair and Renewal Strategy
Governor Ricketts and the Nebraska Legislature approved LB384 (formerly LB588), which allowed us to holistically execute the deferred maintenance strategy. We were able to lock in a historically low interest rate of 2.99% on a $400 million bond issuance which will be put to immediate use. The Board approved the first program statement utilizing LB384 funding when the Kayser Hall renovation at UNO was approved on June 25th.

Fall 2020 Headcount Enrollment >= Fall 2019
Amid the uncertainties of the COVID-19 pandemic, I’m incredibly pleased we enrolled over 500 more students in Fall 2020 than in Fall 2019 (a one percent increase). Specific successes included UNO’s highest enrollment since 1992 and UNMC’s 20th straight record-high enrollment. For specific figures, please reference the chart on the following page.
Our campus research offices continue to close the books on FY2020-21; however, we conservatively estimate our University-wide research awards were $17.9 million greater this fiscal year.

<table>
<thead>
<tr>
<th></th>
<th>FY2020-21</th>
<th>FY2019-20</th>
<th>△</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extramural Research Awards</td>
<td>334,882,356</td>
<td>316,954,044</td>
<td>17,928,312</td>
</tr>
</tbody>
</table>

Develop relationships with Governor and meet with each member of the Nebraska Legislature

Governor Ricketts and I have developed a close relationship and worked collaboratively on several projects over the past year including pandemic response, U.S. Space Command recruitment, and deferred maintenance. The Governor’s visit to our June Board of Regents’ meeting was the first visit by a sitting Governor in modern history.

Since arriving in January 2020, I have met with every member of the Nebraska Legislature at least once. And while the pandemic challenged relationship building efforts, I have had over 100 meaningful interactions with Senators since my arrival.

Obtain 2% Annual State Appropriations Budget Request

Thanks to the incredible support of Governor Ricketts and the Nebraska Legislature, we have been appropriated our full biennial budget request. This represents a 2.21% increase in FY2021-22 and a 2.02% increase in FY2022-23. Additionally, we received $2 million in each year of the biennium for new cohorts of Nebraska Career Scholarship students.
Conduct University-wide Climate Survey
The Chancellors and I made the intentional choice to deploy the University-wide climate survey in September-October 2021 to ensure strong participation by students, staff, and faculty. We have selected Gallup to administer and design the survey in collaboration with an internal working group. We’re looking forward to analyzing the results in December 2021 and developing action plans to address any issues we identify. Further, the 2021 survey will serve as a baseline from which we will measure future work.

Active Participation in Global/National Organizations Advancing Higher Education and Research
For several years, I have been an active participant in the Aspen Institute for Higher Education. In fact, the Aspen Institute is where I first met President Emeritus Milliken. This past June, I moderated a panel discussion with the President of Kansas State University, Chancellor of the North Dakota University System, and President of Metropolitan State University of Denver regarding “what higher education leaders can learn from how the military conducts scenario planning and responds to crises like pandemics.” In addition to the Aspen Institute, I’ve also participated in the Association of Public Land-grant Universities (APLU) Council of Presidents and the National Association of System Heads (NASH) activities to learn from my colleagues across our nation.

During the early months of the pandemic, I participated in weekly webinars with the Asia Group as one of two higher education representatives (the other hailing from Harvard University). This group was helpful in monitoring responses to the pandemic worldwide and gleaning strategies from other industries and geographies.

Finally, I’ve actively linked the University of Nebraska with my connections in the Federal government. We’re currently exploring partnership opportunities with the National Defense University, developed a Higher Education Space Research and Workforce Alliance concept, and have connected the Daugherty Water for Food Global Institute (DWFI) with the National Oceanic and Atmospheric Administration (NOAA).
### Access, Affordability, and Attainment

- **Launch Nebraska Promise**
- **Evaluate all University-imposed costs to students and limit increases**
  - Across-the-board tuition freeze enacted AY2021-22.
- **Shift University's undergraduate tuition model to a "block" basis**
  - CBOs modeling impact and implementation strategies.
- **Adopt a 4-year undergraduate graduation guarantee**
- **Evaluate innovation academic calendar models**
  - Conducted "winterim" test in 2021.
- **Strengthen pathways to higher education**
  - Reengaging Nebraska P-16 effort; hosted all public higher ed leaders in June 2021.

### Workforce Development

- **Pursue partnerships to fund scholarships in key workforce areas**
  - Governor and Legislature approved $6 million for Nebraska Career Scholarships.
- **Develop scholarship programs to attract nonresident students**
  - UNK launched New Nebraskans scholarship; other campuses in planning.
- **Build/test models to guarantee internships, jobs, and debt forgiveness**
  - Working with Nebraska Chamber to deploy "Handshake" platform as internship "matchmaker" for all public higher education.

### Culture, Diversity, and Inclusion

- **Develop implicit bias training program.**
  - Curriculum under development; intended deployment during FY2021-22.
- **Refine policies and procedures to more fully support students/employees**
- **Conduct annual climate survey**
  - Under development for implementation in fall 2021.
- **Commit to no new state-aided non-faculty FTEs until faculty salaries reach their peer averages at UNL and UNMC**
  - 2021-2023 biennial budget includes faculty market compensation pools intended to bring UNL and UNMC faculty to their peer averages.
- **Identify and reduce gender and racial equity pay gaps**
  - Compensation study in process.

### Partnerships

- **Focus University investments on:**
  - **Water and Food Security**
    - $5 million gift for water and public health nexus.
  - **Infectious Disease**
    - State awarded $300 million for NExT project; UNMC named pilot site.
  - **Rural Community Vitality**
    - Rural Prosperity Nebraska launched in August 2020.
  - **National and Cyber Security**
    - NSRI received IDIQ 3 in September 2020 and affirmation of sponsorship; PIA and multiple CPOs awarded to NORDC by U.S. Strategic Command. Partnership with U.S. Space Command under development.
  - **Early Childhood Education**
    - Testified on LR390 (fiscal/economic impact of pandemic on early childhood workforce/care).
- **Increase sense of bond and connection among alumni and donors**
  - Continuing NU Foundation alumni/donor survey.
- **Increase number of annual donors to 75,000 by 2027**
  - Progressing comprehensive fundraising campaign planning.
- **Increase annual total private support to $300 million by 2027**
  - Progressing comprehensive fundraising campaign planning.
- **Engage 374,000 alumni in events and advisory/advocacy network**
  - Substrategies being led by Office of External Relations (e.g., D.C. Alumni Engagement).

### Efficiency and Effectiveness

- **Develop a 5-year rolling budget**
  - 5-year budget under development.
- **Maintain a structurally balanced budget**
  - Budget is currently structurally balanced.
- **Launch Red Tape Review initiative**
  - Chapter 6 policy review underway.
- **Develop comprehensive University-wide capital master plan**
  - 5-year capital plans developed as part of 2021 University Facilities Program.
- **Launch 2021 University Facilities Program**
  - LB384 (formerly LB588) approved by Governor and Legislature; $400 million bonds issued.
- **Evaluate all University assets for monetization/maximization**
  - Excess land and spectrum licenses sold.
- **Set and achieve University-wide sustainability goals**
  - Chief Sustainability Officer appointed; University-wide goals under development.
The Board of Regents of the University of Nebraska met on June 25, 2021, at 9:00 a.m. in the board room at Varner Hall, 3835 Holdrege Street, Lincoln, in a publicly convened session, the same being open to the public and having been preceded by advance publicized notice, a copy of which are attached to the minutes of this meeting as Attachment 1 (pages 109).

In compliance with the provisions of Neb. Rev. Stat. § 84-1411, printed notice of this meeting was sent to each member of the Board and was posted on the front of the first floor entrance of Varner Hall. In addition, copies of such notice were sent to the Lincoln Journal Star, Omaha World Herald, the Daily Nebraskan, the Gateway, the Antelope, the Kearney Hub, and the Lincoln office of the Associated Press on June 18, 2021.

Regents present:
Timothy Clare
Paul Kenney, Chair
Elizabeth O’Connor
Bob Phares, Vice Chair
Jim Pillen
Robert Schafer
Jack Stark
Barbara Weitz
Noah Limbach, University of Nebraska at Kearney
Batool Ibrahim, University of Nebraska-Lincoln
Taylor Kratochvil, University of Nebraska Medical Center
Maeve Hemmer, University of Nebraska at Omaha

University officials present:
Walter E. Carter, President
Susan M. Fritz, Executive Vice President and Provost
Stacia L. Palser, Interim Corporation Secretary
Jeffrey P. Gold, Chancellor, University of Nebraska Medical Center and University of Nebraska at Omaha
Joanne Li, Chancellor-Elect, University of Nebraska at Omaha
Ronnie D. Green, Chancellor, University of Nebraska-Lincoln
Douglas A. Kristensen, Chancellor, University of Nebraska at Kearney
Michael J. Boehm, Vice President for Agriculture and Natural Resources
Christopher J. Kabourek, Vice President for Business and Finance | CFO
Heath M. Mello, Vice President for External Relations
James P. Pottorff, Vice President and General Counsel

I. CALL TO ORDER

II. ROLL CALL

The Board convened at 9:00 a.m. in the board room of Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska. Attendance is indicated above.
III. APPROVAL OF MINUTES AND RATIFICATION OF ACTIONS

Motion

Moved by Clare and seconded by Stark to approve the minutes and ratify the actions of the regularly scheduled meeting on May 1, 2021.

Action


Chairman Kenney announced the location of the Notice of Meeting and Open Meetings Act.

Chairman Kenney welcomed newly-elected student regents Noah Limbach, University of Nebraska at Kearney; Batool Ibrahim, University of Nebraska-Lincoln; Taylor Kratochvil, University of Nebraska Medical Center; and Maeve Hemmer, University of Nebraska at Omaha.

President Carter welcomed newly-elected Faculty Senate Presidents Ben Malczyk, University of Nebraska at Kearney; Steve Kolbe, University of Nebraska-Lincoln; Aaron Mohs, University of Nebraska Medical Center; and Elizabeth Wessling, University of Nebraska at Omaha.

IV. PRESENTATIONS

Governor Ricketts addressed the Board, commending the University for its strong leadership and success despite the challenges presented by the COVID-19 pandemic and highlighting the strong partnership between the University and the State of Nebraska.

V. KUDOS

Regent Pillen presented a KUDOS award to Michael Christen, Director of Business Services and Executive Director of University Village at the University of Nebraska at Kearney.

Regent Hemmer presented a KUDOS award to Scott Kurz, Physiology Laboratory Manager at the University of Nebraska-Lincoln.

Regent Stark presented a KUDOS award to Juli Bohnenkamp, Online Testing Resource Coordinator for the UNMC College of Nursing at the University of Nebraska Medical Center.

Regent Kratochvil presented a KUDOS award to Sarah Weil, Title IX Coordinator at the University of Nebraska at Omaha.

VI. RESOLUTIONS

Regent Weitz presented the following resolution:

WHEREAS, Dr. Susan Fritz served as a Professor in the University of Nebraska-Lincoln’s Department of Agricultural Leadership, Education and Communication with an
appointment in Women’s and Gender Studies since 1994 where she excelled in teaching, research and service.

WHEREAS, Dr. Fritz’s professional expertise led to her service as a two-time U. S. Department of Commerce Baldrige Evaluator, a North Central Higher Learning Commission Evaluator, a W K Kellogg/APLU Food Systems Leadership Institute Commissioner and a Fulbright Senior Specialist with an assignment in Croatia.

WHEREAS, Dr. Fritz honorably served the University of Nebraska as the Executive Vice President and Provost and Dean of the Graduate College from 2012 to 2021.

WHEREAS, Dr. Fritz has been a role model for aspiring women, students, staff, faculty and administrators as the first woman to serve as head of a peer department nationally; the first woman to serve as Associate Dean of the College of Agricultural Sciences and Natural Resources, Interim Dean of the Agricultural Research Division and Director of the Nebraska Experiment Station at UNL; and the first woman to serve as NU Associate Vice President of Academic Affairs and Interim University of Nebraska President.

WHEREAS, Dr. Fritz, during her service as Interim NU President, led the partnership of the University of Nebraska, Nebraska State College System, and Nebraska community colleges to garner a potential $32 million annual commitment from the State of Nebraska to fund scholarships for resident students majoring in programs leading to careers with high skill, high need, and high wages.

WHEREAS, Dr. Fritz led the development and implementation of the systemwide shared application allowing resident students to apply to multiple NU campuses at one time, and spearheaded the development of a systemwide Student Code of Conduct which reflects the paths of students enrolled in more than one NU campus at a time.

WHEREAS, Dr. Fritz led the effort to establish and fund the Nebraska Statewide Workforce and Educational Research System in partnership with the Nebraska State College System, Nebraska community colleges, Nebraska Department of Education, the Nebraska Department of Labor and the University of Nebraska creating an opportunity to use “good data for great decisions” for Nebraska’s students and workforce.

WHEREAS, Dr. Fritz served as the NU point of contact with the Susan Thompson Buffett Foundation whose generosity to Thompson Scholars has impacted the lives of thousands of “at promise” NU students.

WHEREAS, Dr. Fritz led the Budget Response Team process charged with identifying budget cuts and process improvements to yield $22 million in permanent cuts.

WHEREAS, Dr. Fritz partnered with the NU Foundation to launch the ‘Big Ideas’ process as an initial step in the Foundation’s Campaign to identify multi-campus, faculty-driven proposals for funding which build on campus strengths and position the NU system for increased national and international prominence.

WHEREAS, Dr. Fritz championed initiatives to increase the inclusivity of NU and its campuses through efforts such as establishing and supporting the work of the Non-binary Gender Values Committee.
WHEREAS, Dr. Fritz mentored many students, staff, faculty and administrators across the NU system and the United States, inclusive of gender, race, ethnicity and sexual orientation.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Regents of the University of Nebraska extends its thanks and congratulations to Dr. Susan Fritz for her leadership, vision, service and passion for the academic community and her unwavering commitment to people and place.

Resolution Adopted
There being no objection, the above resolution was approved and adopted by the general consent of the Board.

VII. HEARINGS
None

VIII. PRESIDENT’S REMARKS
President Carter addressed the Board, providing detail on the FY 2021-22 operating budget and the impressive growth trajectory of the University over the last year in enrollment, research, technology and facilities.

IX. PUBLIC COMMENT
None

X. UNIVERSITY CONSENT AGENDA


A. ACADEMIC AFFAIRS

University of Nebraska

X-A-1 President’s Personnel Recommendations

X-A-2 Approve the academic program reviews report required by the Nebraska Coordinating Commission for Postsecondary Education (NCCPE) and approve forwarding of the program review reports to the NCCPE

University of Nebraska at Kearney

X-A-3 Approve the monitoring report on the August 3, 2018 Action Plan for the Bachelor of Arts (BA) degree in Philosophy at the University of Nebraska at Kearney (UNK) and forward the report to the Nebraska Coordinating Commission for Postsecondary Education (NCCPE)

X-A-4 Approve the monitoring report on the Bachelor of Science (BS) degree in Interior Design Comprehensive at the University of Nebraska at Kearney (UNK) and forward the report to the Nebraska Coordinating Commission for Postsecondary Education (NCCPE)
University of Nebraska at Omaha

X-A-5 Approval is requested to continue the Bachelor of Science (BS) in Black Studies at the University of Nebraska at Omaha (UNO) and to forward the associated review report and monitoring plan to the Nebraska Coordinating Commission for Postsecondary Education (NCCPE)

B. BUSINESS AND FINANCE

University of Nebraska

X-B-1 Authorize the Vice President for Business and Finance to approve the amended University of Nebraska Group Health, General Risk-Loss, and Reimbursement Trust Fund Agreements between the Board of Regents of the University of Nebraska and Wells Fargo Bank

University of Nebraska Medical Center

X-B-2 Approve the NExT pilot project, subject to Board of Regents policies, federal state, and local government approvals needed to complete the project and subject to obtaining the funding, financing, and donations needed for the project, and approve the submission of an application by the University of Nebraska for matching funds from the State of Nebraska under the Nebraska Transformational Projects Act

University of Nebraska at Omaha

X-B-3 Extend the Scott Campus at the University of Nebraska at Omaha (UNO) to include all UNO’s property south of Pacific Street


XI. UNIVERSITY ADMINISTRATIVE AGENDA

A. ACADEMIC AFFAIRS

University of Nebraska

Motion Moved by Clare and seconded by Weitz to approve item XI-A-1

XI-A-1 Approve the establishment of RP-3.3.15 of the Policies of the Board of Regents related to the University-wide Consensual Relationships Policy


Motion Moved by Phares and seconded by Clare to approve item XI-A-2

XI-A-2 Approval to amend the University of Nebraska Four-Year Graduation Guarantee
University of Nebraska-Lincoln

Motion Moved by Phares and seconded by Stark to approve item XI-A-3

XI-A-3 Approval to eliminate the Bachelor of Arts (BA) in Hospitality, Restaurant and Tourism Management in the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln (UNL)


Motion Moved by Pillen and seconded by Clare to approve items XI-A-4, XI-A-5, and XI-A-6

XI-A-4 Approval to eliminate the Leadership Undergraduate Certificate in the Department of Agricultural Leadership, Education and Communication in the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln (UNL)

XI-A-5 Approval to eliminate the Legal Studies Undergraduate Certificate in the Department of Agricultural Economics in the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln (UNL)

XI-A-6 Approval to eliminate the Nebraska Beef Industry Scholars Undergraduate Certificate in the Department of Animal Science in the College of Agricultural Sciences and Natural Resources at the University of Nebraska-Lincoln (UNL)


Motion Moved by Stark and seconded by Weitz to approve item XI-A-7

XI-A-7 Approval to create a Bachelor of Fine Arts in Acting in the Johnny Carson School of Theatre and Film in the Hixson-Lied College of Fine and Performing Arts at the University of Nebraska-Lincoln (UNL)


University of Nebraska at Omaha

Motion Moved by Weitz and seconded by Phares to approve item XI-A-8

XI-A-8 Approval to create a Master of Arts (MA) in History and Government in the Department of History and Department of Political Science in the College of Arts and Sciences at the University of Nebraska at Omaha (UNO)

University of Nebraska

Motion Moved by Pillen and seconded by O’Connor to approve items XI-B-1, XI-B-2, XI-B-3, and IX-B-4

XI-B-1 Approve the Fund B, University Program and Facilities Fee (UPFF) 2021-22 Allocation for the University of Nebraska at Kearney

XI-B-2 Approve the Fund B University Program and Facilities Fees (UPFF) 2021-22 Allocation for the University of Nebraska-Lincoln

XI-B-3 Approve the Fund B, University Program and Facilities Fee (UPFF) 2021-22 Allocation for the University of Nebraska Medical Center

XI-B-4 Approve the Fund B, University Program and Facilities Fees (UPFF) 2021-22 Allocation for the University of Nebraska Omaha


Motion Moved by O’Connor and seconded by Phares to approve items XI-B-5 and XI-B-6

XI-B-5 Approve the FY 2021-22 Operating Budget and 2021-22 and 2021-22 tuition rates for the University of Nebraska

IX-B-6 Approve the FY 2021-22 Operating Budget and 2021-22 and 2021-22 tuition rates for the Nebraska College of Technical Agriculture


University of Nebraska at Kearney

Motion Moved by Pillen and seconded by Stark to approve items XI-B-7 and XI-B-8

XI-B-7 Approve and authorize execution of standard form Guaranteed Maximum Price contract amendments for New Fraternity and Sorority Life Housing at UNK

University of Nebraska-Lincoln

XI-B-8 Approve and authorize execution of standard form Guaranteed Maximum Price contract amendments for Kiewit Hall at UNL


University of Nebraska Medical Center

Motion Moved by Pillen and seconded by Clare to approve items XI-B-9, XI-B-10, and XI-B-11
XI-B-9 Approve the acquisition of the property known as American National Bank, Saddle Creek Lots OLA Block 0, Outlots A&B for the University of Nebraska Medical Center

XI-B-10 Approve the acquisition of the properties located at 4616, 4625, 4627, and 4631 Farnam Street, Omaha, Nebraska for the University of Nebraska Medical Center

XI-B-11 Approve the acquisition of the properties located at 4308, 4314, 4338, and 4342 Leavenworth Street, Omaha, Nebraska for the University of Nebraska Medical Center


University of Nebraska at Omaha

Motion Moved by Clare and seconded by Ibrahim to approve item XI-B-12

XI-B-12 Approve the Program Statement for Kayser Hall Renovation for the Samuel Bak Museum and Academic Learning Center at UNO


Motion Moved by Phares and seconded by Weitz to approve item XI-B-13

XI-B-13 Approve the University of Nebraska at Omaha Department of Public Safety (UNODPS) joining the Interlocal Agreement allowing cooperating law enforcement agencies within Douglas and Sarpy counties in Nebraska to provide assistance in time of emergency or other time of need


C. FOR INFORMATION ONLY

XI-C-1 Amendment of the Standing Rules of the Board of Regents

D. REPORTS

XI-D-1 Quarterly Personnel Report for the period January through March 2021

XI-D-2 Spring 2021 Enrollment Report

XI-D-3 Expedited Approval of the Mathematics Education Graduate Certificate to be administered by the Department of Teaching, Learning and Teacher Education in the College of Education and Human Sciences in consultation with the College of Arts and Sciences at the University of Nebraska-Lincoln (UNL)

XI-D-4 Laboratory, Student, and Miscellaneous Fees for 2021-2022
XI-D-5 Annual Program Monitoring Reports to the Board of Regents
XI-D-6 Quarterly report of Gifts, Grants, Contracts and Bequests
XI-D-7 Quarterly Status of Capital Construction Projects
XI-D-8 Bids and Contracts
XI-D-9 Intermediate Design Report for the Schmid Law Library Renovation at the University of Nebraska-Lincoln (UNL)
XI-D-10 Naming of an exhibit in the Wigton Heritage Center “In Recognition of Bernice M. Hetzner, Director, McGoogan Library, (1948-1973) a Pioneer” pursuant to the Board of Regents Policy RP-2.7.3.b
XI-D-11 Naming of an exhibit in the Wigton Heritage Center “The History of Teaching Tools Exhibit” pursuant to the Board of Regents Policy RP-6.2.7.3.b
XI-D-12 Approve the naming of selected spaces within the Rod Rhoden Business Innovation Center at the University of Nebraska at Omaha, pursuant to Board of Regents Policy RP-6.2.7.3.b
XI-D-13 Renewal of Student Health Insurance Policies

Chairman Kenney accepted the reports on behalf of the Board.

XII. ADDITIONAL BUSINESS

Motion Moved by O'Connor and seconded by Weitz that the Board go into closed session as authorized by Neb. Rev. Stat. § 84-1410 of the Revised Statutes of Nebraska for the protection of the public interest, and to prevent needless injury to the reputation of persons who have not requested a public hearing, for the purpose of holding a discussion limited to the following subject:

- Personnel matters involving members of the University staff.

Chair Kenney declared that the closed session would be strictly limited to a discussion of:

- Personnel matters involving members of the University staff.


The Board went into closed session at 10:52 a.m. The Board reconvened the open meeting at 11:37 a.m.

XIII. ADJOURNMENT

There being no further business, the meeting was adjourned by Chairman Kenney at 11:37 a.m.
Respectfully submitted,

Stacia L. Palser  
Interim Corporation Secretary

Paul R. Kenney, Chair
ATTACHMENT 1

NOTICE OF MEETING

Notice is hereby given that the Board of Regents of the University of Nebraska will meet in a publicly convened session on Friday, June 25, 2021, at 9:00 a.m. in the board room of Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska.

An agenda of subjects to be considered at said meeting, kept on a continually current basis, is available for inspection in the office of the Corporation Secretary of the Board of Regents, Varner Hall, 3835 Holdrege Street, Lincoln, Nebraska, or at https://nebraska.edu/regents/agendas-minutes

A copy of this notice will be delivered to the Lincoln Journal Star, the Omaha World-Herald, the Daily Nebraskan, the Gateway, the Antelope, the Kearney Hub, the Lincoln office of the Associated Press, members of the Board of Regents, and the President’s Council of the University of Nebraska.

Dated: June 18, 2021

Stacia L. Palser
Interim Corporation Secretary
Board of Regents
University of Nebraska