Associate Deans for Research  
Friday, May 16, 2014  
MEETING MINUTES

In attendance: Jillian Inouye, Connie Mobley, Mohamed Trabia, Kendall Hartley, Jennifer Keene, Jennifer Fabb, Javier Rodriguez, Tara Emmers-Sommer, Carol Brodie, Calleen Johnson, Tom Piechota, Stan Smith, Zach Miles, Lori Olafson, David Paul, Rob Nielsen, Sue DiBella, and Jill Zimbelman

1. General Announcements/Updates
   a. CoRE Fellows Update – Jennifer Keene
      i. Weekly organizational meetings
      ii. Basic CoRE infrastructure is setup
      iii. Bi-monthly CoRE e-mail updates are being sent to the campus community
      iv. Short-term budget has been developed and request is being submitted
      v. Informal convening meetings across all areas are being conducted
      vi. Long-term planning (business plan development)
      vii. CoRE Faculty & Staff Social Across Disciplines was held 05/15/2014
   b. Vivarium Master Plan – Stan Smith
      i. The status of the Vivarium project was discussed. The next step is to have meetings regarding funding.
   c. Tier One Planning – Tom Piechota
      i. Discussed the UNLV Official message sent from President Snyder, regarding the path to Tier One, sent 05/15/2014.
      ii. Professor Nancy Rapoport has been appointed as the Senior Advisor to the President and will serve as his point person for the Tier One initiative.

2. Proposal Development Manager – Carol Brodie
   a. David Paul introduced Carol Brodie, who has joined UNLV to provide proposal development services to faculty. Carol has developed a website and is currently developing a bi-weekly newsletter.
   b. Services will include:
      i. Editing and writing of large, multi-disciplinary proposals.
      ii. Training for faculty starting this fall. Topics to include proposal writing, funding for early career faculty, budget development, and putting together proposals for NIH, NSF, etc.
      iii. Locating Funding – there will be a web form to request funding searches. Priority will be on CoRE and multi-disciplinary projects.
   c. Carol will also be working to form a network of grant writers on campus.
3. Research Staff and Tier One Data – Sue DiBella
   a. Discussion regarding accurate data for research staff and reporting to Carnegie.

   a. College of Sciences

5. Unit Updates
   a. Kendall Hartley – Grants discussion and new application system for Grad College
   c. Jennifer Fabbi – Leaving UNLV (Annette Day will be interim)
   d. Tara Emmers-Sommer – Recognized various award winners

6. Volunteers for Spotlight on Research
   a. Kate Korgan/Kendall Hartley (Graduate College) – June 20, 2014
   b. Thomas Main (Law School) – July 18, 2014

Next Meeting June 20, 2014 in SEB 2251
Spotlight on Research

College of Sciences
University of Nevada, Las Vegas
Part 1

UNLV College of Sciences

Timothy L. Porter
Dean

- Condensed Matter Physics.
- Has published more than 80 scientific articles.
- Holds 10 U.S. and international patents related to his work with chemical and biological microsensors.
UNLV College of Sciences

- Department of Chemistry
- Department of Geoscience
- Department of Mathematical Sciences
- Department of Physics and Astronomy
- School of Life Sciences

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
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<tr>
<td>Tenured and Tenure-track</td>
<td>74 (80%)</td>
<td>19 (20%)</td>
</tr>
<tr>
<td>Faculty</td>
<td></td>
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<tr>
<td>Postdoctoral Researchers</td>
<td>8 (50%)</td>
<td>8 (50%)</td>
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<tr>
<td>Research Staff</td>
<td>14 (47%)</td>
<td>16 (53%)</td>
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<tr>
<td>Total</td>
<td>96 (69%)</td>
<td>43 (31%)</td>
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### UNLV College of Sciences
#### International Faculty

- Austria
- Bangladesh
- Brazil
- Bulgaria
- Canada
- China
- Dominican Republic
- Germany
- Greece
- Haiti
- India
- Iran
- Japan
- Netherlands
- Nicaragua
- Philippines
- Poland
- Puerto Rico
- South Korea
- Sri Lanka
- Switzerland
- United Kingdom
- United States of America

### UNLV College of Sciences

- **Graduate Students**
  - 133 (61%) Males, 86 Females – Total: 219

- 79% of these students (104 Males, 68 Females) are supported by Fellowships, GAs, or RAs.
CoSci – Research Approaches

- Empirical – Theoretical
- Observational – Experimental
- Field – Laboratory
- Basic Research – Applied Research
- Subterranean Earth Habitats – Cosmos
- Cellular – Organismal – Population – Community – Ecosystem

Biomedical Research and Technology

![Diagram of research anchors and faculty](image)

Faculty anchors and junior faculty may reside in different academic units on campus.

- Anthropogenic Climate Change
- Biochemical Pharmacology of Synthetic and Natural Products
- Biomaterials
- Biostatistics and Biomathematics
- Diseases of Aging
- Emerging Diseases and Biogeography
- Environmental Biogeology
- Infectious Diseases
- Radiochemistry and Radiopharmaceuticals
- Regenerative Biology and Tissue Engineering
- Stem Cell Biology
Clean Energy Science

Faculty anchors and junior faculty may reside in different academic units on campus.

- Biofuels
- Carbon Sequestration and Removal from Atmosphere
- Computational Simulation for Storage and Utilization
- Dynamic Systems
- Energy Storage Materials
- Geoengineering and Nuclear Waste Issues
- Geothermal Energy
- Modeling and Numerical Methods for Clean and Renewable Energy
- Nuclear Science and Radiochemistry
- Quantum Control

Clean Energy Science (continued)

Faculty anchors and junior faculty may reside in different academic units on campus.

- Rare-Earth Elements
- Thin Film Photovoltaic Materials, Characterization, and Testing
- Waste Conversion
Materials and Computational Science

Faculty anchors and junior faculty may reside in different academic units on campus.

- Applied Analysis
- Biomaterials
- Energy Storage Materials
- Environmental Geology
- Mineralogy and Earth Resources
- Nanoscience
- Novel Industrial Materials
- Radiochemistry of Actinides and Lanthanides
- Radiopharmaceuticals
- Simulation of Energy Generation and Storage Materials
- Superhard Materials

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UNLV College of Sciences

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<tr>
<th>Fiscal Year</th>
<th>No. of Awards</th>
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<tr>
<td>2012</td>
<td>90</td>
<td>$9,176,634</td>
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<tr>
<td>2013</td>
<td>81</td>
<td>$9,969,716</td>
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<tr>
<td>2014 (3 qtrs.)</td>
<td>54</td>
<td>$8,174,467</td>
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<td>225</td>
<td>$27,320,817</td>
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Funding Sources (partial)

– Environmental Protection Agency
– National Aeronautics and Space Administration
– National Institutes of Health
– National Science Foundation
– National Nuclear Security Administration
– National Renewable Energy Lab
– National Security Technologies

Funding Sources (partial)

– Nevada Department of Wildlife
– Nevada System of Higher Education
– U.S. Bureau of Land Management
– U.S. Department of Energy
– U.S. Fish & Wildlife Service
– U.S. Forest Service
– U.S. Geological Survey
School of Life Sciences Grant Club

Dr. Martin Schiller
School of Life Sciences

The mission of the Grant Club is to foster the careers and funding success of its members, the School of Life Sciences, and of UNLV, to promote collaborations, and to cultivate a vibrant scientific community.

Benefits of SoLS Grant Club

- Mentoring of junior faculty, postdoctoral fellows, and students.
- Promotes new collaborations.
- Helps to improve grant quality.
- Increases funding rates.
- Increases efficiency through common documents.
- Cultivates a community.
Genomics Core Facility

- The Genomics Core Facility provides a wide range of instrumentation to researchers studying the functions of genes and their products.
- The Genomics Core Facility provides training for the use of equipment. Staff may also be contracted to perform selected services.
- The Genomics Core Facility is supported by Nevada INBRE, which is part of the IDeA Network of Biomedical Research Excellence, an NIH Program designed to help traditionally underfunded states build biomedical infrastructure.

High Pressure Science and Engineering Center

- HiPSEC is a Department of Energy / National Nuclear Security Administration Center of Excellence.
- HiPSEC does experimental and theoretical research on materials at high pressures.
- HiPSEC is committed to the mission of higher education, and is preparing the next generation of scientists for the DOE/NNSA National Laboratories.

Dr. Yusheng Zhao
Executive Director, HiPSEC
Amei is interested in addressing questions in population genetics and mathematical biology using probability theory and statistics, and on developing mathematical models for cancer detection.

- Dr. Dennis Bazylinski (School of Life Sciences) is a renowned expert on magnetotactic bacteria, and a prolific author.
- Elected Fellow of the American Academy of Microbiology in 2014.
- Bazylinski and Dr. Mark Buttner (School of Community Health Sciences) received a 14-month, $106,098 award from the Clark County School District to establish an airborne pollen monitoring program in Las Vegas.
Asbestos is a known human carcinogen with no known safe levels of exposure.

Research conducted by Buck and her colleagues documented for the first time the presence of naturally occurring asbestos in Clark County, Nevada.
UNLV College of Sciences

Dr. Nora Caberoy (School of Life Sciences) studies eye diseases. Specifically, she studies the retina, the thin, multi-layer, light-sensitive tissue that is found at the back of the eye.

UNLV College of Sciences

- Radiochemistry encompasses chemical and nuclear properties of radioactive elements and isotopes.
- Dr. Kenneth Czerwinski (Department of Chemistry) has built a world-class Radiochemistry Program at UNLV.
- Czerwinski was elected Fellow of the American Association for the Advancement of Science in 2012.
• Phosphorus is a critical element for life on Earth, and Hausrath and Forster provided experimental evidence that Martian phosphate minerals dissolve more quickly than terrestrial ones.

• With readily available phosphate, life would have faced one less obstacle.
Spotlight on Research

College of Sciences
University of Nevada, Las Vegas
Part 2

Gibbs, an evolutionary physiologist, and Raftery, a developmental biologist, were awarded a competitive award from the National Science Foundation to study ovarian development in starvation-selected *Drosophila* Fruit Flies, with the ultimate goal of understanding how adaptation to a “feast or famine” lifestyle affects fertility.
Dr. Brian Hedlund (School of Life Sciences) studies the biogeochemistry of high temperature habitats in the western U.S. and China.

Dr. Clemens Heske (Department of Chemistry) studies the electronic and chemical properties of surfaces and interfaces.
Dr. Jessica Jaynes (Department of Mathematical Sciences) studies the connection between new developments in statistical methods and medical research.

UNLV College of Sciences

Dr. Matthew Lachniet (Department of Geoscience) studies paleoenvironmental and paleoclimatic change in North and Central America.

- In a recent high-profile paper, Lachniet’s team used minerals preserved in ancient Nevada caves to offer the most concise climate history to date for the Great Basin region.
Dr. David Lee, School of Life Sciences

How do animals move?

Gaits to springs: collision analysis and functional models

Dr. Dennis Lindle
Department of Chemistry

- Lindle’s research interests are in the area of X-ray spectroscopy and the fundamental properties of matter.
- He was named Distinguished Professor in 2013.
Proga’s main interests include theoretical astrophysics of black holes and their environments. For example, he uses computer simulations to understand how the energy that is generated by a growing black hole affects the galaxy where the black hole occurs.
Dr. Brett Riddle  
School of Life Sciences  

UNLV College of Sciences  

Dr. Stephen Rowland (Department of Geoscience) studies the history of life as recorded in the fossil record, especially the paleontology of Southern Nevada and adjacent regions.
Dr. Martin Schiller’s research focuses on building bioinformatics tools to forward biological discovery (e.g., HIV virology and identification of new drug targets).

Schiller (School of Life Sciences) is a prolific author and one of three finalists for Executive Director of the Institute for Quantitative Health Sciences.

Cancer stem cells are sources of metastasis, and the primary cause of recurrence after conventional therapy.

Zhang is developing chemical inhibitors of the Sox2 gene, which confers stem cell properties to cancer cells.
UNLV College of Sciences

- In Fall 2013, the College of Sciences established the Research Fund for Innovation and Development (RFID).
- The goal is to provide seed funding for projects that have developmental potential, as determined by UNLV’s Office of Economic Development.
- In 2013, the College awarded >$100K in RFID funds to four of its researchers.

Dr. Ernesto Abel Santos
Department of Chemistry

- Abel Santos is developing a compound (CamSA) to prevent the germination of the bacterium *Clostridium difficile* in humans.
- This bacterium poses a particular danger for patients with suppressed immune systems, many of whom have been in a hospital, surgery center, or nursing home.
Dr. Penny Amy  
School of Life Sciences

- Pollination by Honey Bees (*Apis mellifera*) is essential for one-third of U.S. food crops, including apples, soybeans, almonds, and citrus, crops valued at *ca.* $15 billion per year.

- Amy is researching the pathogens that target and kill the bacterium *Paenibacillus larvae*, which has played a key role in the decline of Honey Bee populations.

Dr. Bryan Spangelo  
Department of Chemistry

- Spangelo and his colleagues are looking for ways to improve the effectiveness of a common chemotherapy drug (Cisplatin) for lung cancer.

- In April 2014, the U.S. Patent and Trademark Office issued approved a patent for Spangelo’s research.
• Stroke afflicts *ca.* 800,000 people in the U.S. every year, and causes *ca.* 145,000 deaths.

• van Breukelen is collaborating with Dr. Biswajit Das (Department of Electrical and Computer Engineering) to develop a new blood flow sensor that could help detect risks of stroke and heart disease.

UNLV College of Sciences

• Alzheimer’s Disease is a genetically complex neurodegenerative condition typically associated with aging. Alzheimer’s Disease is the most common form of dementia, a general term for memory loss and other intellectual abilities.

• In Spring 2014, the College of Sciences awarded three $25,000 grants in partial support of research into Alzheimer’s Disease.

• The proposals outlined a path to continue research, disseminate results, and apply for external funding beyond the timeframe of this project.
UNLV College of Sciences

<table>
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<th>Gender</th>
<th>No. of students</th>
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<tr>
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<tr>
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<td>43.7%</td>
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University of Nevada, Las Vegas

- In Fall 2013, The College Database named UNLV one of the top 50 Colleges (#33) in the US for advancing women in Science, Technology, Engineering, and Mathematics (STEM).

- Accordingly, UNLV is one of today’s strongest post-secondary institutions advocating for women in STEM disciplines.
UNLV College of Sciences

Opportunities for Undergraduate Research

Beal Bank USA Science Fair

Research Experience for Undergraduates

• Highly competitive, 10–week Summer Program.

• Campus housing.

• Weekly stipend.

• Participants have a 100% College graduation rate.
Research Experience for Undergraduates

Dr. Eduardo Robleto

- Regner and Robleto have received just over $1M (since 2007) from NSF for the REU Microbiology Program.

- Sponsored 88 undergrads, 4 Clark Co. High School Science teachers, and 3 Visiting Faculty from institutions lacking a strong research infrastructure.

- 13 former REU students are coauthors on 17 accepted publications.

Dr. Kurt Regner