Meeting Synopsis:

1. Call to order
2. Review minutes from April 8, 2020
3. Draft letter to the Provost to recommend a Task Force to improve transparency in animal research
4. Draft Class C resolution on transparency, reproducibility and openness in research at UW.
5. Draft Class C resolution on Community Engaged Scholarship
6. Good of the order
7. Review and vote on restricted research proposal
8. Adjourn

1. Call to order

The meeting was called to order at 9:01 a.m.

2. Review minutes from April 8, 2020

The minutes from April 8, 2020 were approved.

3. Draft letter to the Provost to recommend a Task Force to improve transparency in animal research

Chair Marwick asked the council for questions or comments on the draft letter (Exhibit 1).

A member asked about a timeframe for when to send this letter and Marwick noted that sending to the Provost would need an open timeframe, particularly due to COVID-19 having an impact on admin resources.

The council approved motion to send the letter to the Provost.

4. Draft Class C resolution on transparency, reproducibility and openness in research at UW.

Chair Marwick asked the council for questions or comments on the draft Class C Resolution (Exhibit 2).

There was a need to indicate specific resources for people to utilize and this resolution will identify those concepts. The Center on Teaching and Learning will develop professional development resources.

A member asked for clarification on the language. Marwick noted that the language in this resolution is flexible for the types of research done which would find it difficult to work with such strict language. It would be encompassing for more research groups.
A member noted that community data repositories would be helpful.

Another member noted that departments should provide support for their researchers and encourage the need for transparency. FCR would like to incorporate feedback from department chairs on their roles in advocating for transparent research.

Look toward National Institute of Health and National Science Foundation for the specific wording of recommendations to standardize best practices.

5. **Draft Class C resolution on Community Engaged Scholarship**

Chair Marwick asked the council for questions or comments on the draft Class C resolution (Exhibit 3).

Recommendations included providing a one-page rubric for new faculty onboarding and merit evaluation. A member asked if this would include faculty and staff.

Additional words to suggest this is distributed to the faculty on a yearly basis. The goal is to define community engaged scholarship as distinct from service work.

6. **Good of the order**

Mary Lidstrom gave an update on UW research. All bio-medical research has been allowed since March 31, and UW research has been ramping up within restrictions. In Phase 1 of WA gov plan, UW decided to gradually open other areas of research – research is a core function of UW and is an essential activity allowed under the WA Governor’s phased plan. A major restriction requires research be continued with social distancing. Research is highly restricted with human subjects and field research. No significant changes are expected until Phase 2, possibly June 1.

Every PI is required to develop safe and healthy plans for their individual research groups – it must be approved by higher admin. This includes 2 continuing conditions: all work that can be done at home must be done at home. Planning, scheduling, and communicating are examples of at-home work. Scheduling in labs will be staggered.

The varying types of research done at UW make a one-size plan difficult to implement. King County announced new face covering guidelines which will align with UW requirements. For employees who lack the resources to work from home, under Phase 2 UW might allow individuals to return to campus within social distancing procedures.

Budget meetings have laid out the services to cut on campus should there be cuts. Universities have a cap for admin costs and UW has far exceeded the costs. NIH has recommended flexibility for no-cost extensions and re-budgeting. There is a strong national push that the next stimulus package will have a large grant for supplemental research.

A member encouraged council members to attend the upcoming undergraduate research symposium.

7. **Review and vote on restricted research proposal**
The council reviewed a restricted research contract from the Applied Physics Laboratory. Rex Andrew is the principal investigator.

The council made a motion to approve the proposal. The motion was approved.

8. Adjourn

The meeting adjourned at 9:56 a.m.

Minutes by Joey Burgess, jmbg@uw.edu, assistant to the secretary of the faculty

Present: Faculty Code Section 21-61 A: Ben Marwick (chair), Sara Kover, Brandi Cossairt, Mike Averkiou, Michael Rosenfeld, Donald Chi, Nicole Gibran, Francis Kim, Faculty Code Section 21-61 B: Stewart Tolnay, Larry Pierce, Jennifer Muilenburg, JoAnn Taricani

President’s designee: Mary Lidstrom
Guests: Carol Rhodes, Robin Angotti, Lynette Arias, Janice DeCosmo,

Absent: Faculty Code Section 21-61 A: Gillian Marshall, Chuck Frevert
Faculty Code Section 21-61 B:

Exhibits
Exhibit 1 – Letter to Provost to establish Task Force on Transparency in Animal Research
Exhibit 2 – Draft of a resolution Concerning the importance of reproducibility, openness, and transparency in research at UW
Exhibit 3 – Draft Class C resolution on Community Engaged Scholarship
Faculty Council on Research
1 May 2020

Dear Provost Richards,

At the beginning of the 2019-2020 academic year the Faculty Council on Research was charged by the Faculty Senate to “Develop a Class C resolution concerning increased transparency in regards to animal research practices”.

In response to this charge, members of the FCR have consulted extensively with members of the UW’s animal research community to gather information on their practices, obligations, needs and opportunities for improved transparency. We have observed UW’s Institutional Animal Care and Use Committee (IACUC) meetings, and reviewed the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC) inspection reports for UW’s facilities.

Our overall finding is that the UW animal research community is very receptive to new practices and tools that will increase the transparency of their research. Based on feedback we obtained from our consultations, the consensus of the FCR is that the best way forward with this goal is not a Class C resolution, but a faculty-led Task Force appointed by, and with administrative support from, your office. In coming to this conclusion we have been inspired by the success of the Provost’s Task Force on Laboratory Safety’s recommendations. We believe a Task Force like this is an ideal format for this work on improving transparency in animal research at UW.

Our consultations indicate that this Task Force should be tasked with the following aims to provide specific guidance to the Senate on how to ensure sustainable best practices and leadership in animal research at UW:

- Conduct an assessment of current and best practices at the UW regarding the principle of the “Three Rs” related to the use of animal research subjects, that is, “reduction, refinement, and replacement”
- Explore comparative metrics for research transparency in animal research at peer institutions

In our consultation with the UW animal research community we further have identified three specific tasks for this Task Force that will ensure it produces results that are relevant and useful:

To identify innovative, efficient and sustainable processes, tools, and funding, for:

1. Faculty involved in animal research to proactively communicate with the public
2. Long-term compliance with the mandated composition of the IACUC
3. Anticipating future vulnerabilities that might put the UW’s AAALAC International at risk accreditation and assessment
We recommend that this Task Force be constituted as a forward-looking, introspective, constructive group, comprising broadly faculty with expertise not only in animal research, but in the social and ethical dimensions of this work. We request that one of the members of this Task Force be a current member of the FCR to enable continuity with our efforts to date.

I am happy to discuss further and give more background. We look forward to your reply.

Thank you,

Ben Marwick

Chair, UW Faculty Council on Research, 2019-2020
Draft of a resolution **Concerning the importance of reproducibility, openness, and transparency in research at UW**

WHEREAS, the primary mission of the University of Washington is the advancement, dissemination and preservation of knowledge; and

WHEREAS, there is growing evidence that nearly every field is affected by the problem of studies that are difficult or impossible to replicate or reproduce. This slows progress in research and diminishes public trust in science.

WHEREAS, many institutions and research communities are recommending or requiring practices that improve the reproducibility of research that:
- Ensure the reliability of knowledge and facilitating the reproducibility of results
- Improve the efficiency and creativity of knowledge creation
- Expand access to knowledge and to the research enterprise

WHEREAS, the reports by the National Academies of Sciences, Engineering, and Medicine ‘Reproducibility and Replicability in Science’ (2019) and ‘Open Science by Design’ (2018) recommend:
- To help ensure the reproducibility of computational results, researchers should convey clear, specific, and complete information about any computational methods and data products that support their published results in order to enable other researchers to repeat the analysis, unless such information is restricted by nonpublic data policies.
- Educational institutions should educate and train students and faculty about computational methods and tools to improve the quality of data and code and to produce reproducible research.

WHEREAS, many public and private funders have introduced mandates to ensure that the data and methods underlying articles are available

WHEREAS, the University of Washington Libraries has established an online, freely accessible and searchable data repository, ResearchWorks at the University of Washington (ResearchWorks), for the dissemination and preservation of scholarly works published by members of the University community;

therefore,

BE IT RESOLVED, that the Faculty Senate requests that:

1. UW researchers include brief statements in their published work that attest to the reproducibility, transparency and openness of their research whenever possible, and in a manner consistent with the best practices of their research community.
2. UW instructors draw on best practices in their communities to teach students integrity in empirical research by informing students of the principles, methods, and tools that will
enhance the reproducibility, transparency and openness of work produced by future generations of researchers. Instructors are recommended to consult with the UW Center for Teaching and Learning for guidance on specific challenges in teaching concepts and skills of reproducible, transparent and open research.

3. UW researchers and instructors consult the UW Libraries’ resource page on reproducibility to learn more about improving the computational reproducibility of their research, and consult with Data Scientists at the UW eScience Institute for guidance on specific challenges in making their computational work reproducible.

4. The Provost’s Office provides resources to the University of Washington Libraries to support the UW’s ResearchWorks to support the reproducibility, transparency and openness of UW research, according to their previous assessments.
FAQ

Q: What is evidence that nearly every field is affected by studies that are difficult or impossible to replicate or reproduce?

A:

- **Economics**: Reinhart and Rogoff, two respected Harvard economists, reported in a 2010 paper that growth slows when a country’s debt rises to more than 90% of GDP. Austerity backers in the UK and elsewhere invoked this many times. A postgrad failed to replicate the result, and Reinhart and Rogoff sent him their Excel file. They had unwittingly failed to select the entire list of countries as input to one of their formulas. Fixing this diminished the reported effect, and using a variant of the original method yielded the opposite result than that used to justify billions of dollars’ worth of national budget decisions. A systematic study of economics found that only about 55% of studies could be reproduced, and that’s only counting studies for which the raw data were available (Vilhuber, 2018)

- **Cancer biology**: The Reproducibility Project: Cancer Biology found that for 0% of 51 papers could a full replication protocol be designed with no input from the authors (Errington, 2019). Not sharing data or analysis code is common. Ioannidis and colleagues (2009) could only reproduce about 2 out of 18 microarray-based gene-expression studies, mostly due to lack of complete data sharing.

- **Artificial intelligence**: (machine learning) A survey of reinforcement learning papers found only about 50% included code, and in a study of publications associated with neural net recommender systems, only 40% were found to be reproducible (Barber, 2019).

- **Wet-lab biology**: Researchers at Amgen reported shock when they were only able to replicate 11% of 53 landmark studies in oncology and hematology (Begley and Ellis, 2012). A Bayer team reported that ~25% of published preclinical studies could be validated to the point at which projects could continue (Prinz et al., 2011). Due to poor computational reproducibility and methods sharing, the most careful effort so far (Errington, 2013), of 50 high-impact cancer biology studies, decided only 18 could be fully attempted, and has finished only 14, of which 9 are partial or full successes.

- **Social sciences**: 62% of 21 social science experiments published in Science and Nature between 2010 and 2015 replicated, using samples on average five times bigger than the original studies to increase statistical power (Camerer et al., 2018). 61% of 18 laboratory economics experiments successfully replicated (Camerer et al., 2016). 39% of 100 experimental and correlational psychology studies replicated (Nosek et al., 2015). 53% of 51 other psychology studies (Klein et al., 2018; Ebersole et al., 2016; Klein et al. 2014)

- **Medicine Trials**: Data for >50% never made available, ~50% of outcomes not reported, author-held data lost at ~7%/year (Devito et al., 2020)

Q: What are examples of practices that many institutions and research communities are recommending or requiring to improve the reproducibility of research?
A:

- Over 1,100 scholarly journals have implemented the ‘Transparency and Openness Promotion Guidelines’ of the Center for Open Science: https://www.cos.io/top. These allow a journal to clearly communicate its standards for transparency, openness, and reproducibility.

- UK Research and Innovation requires funded researchers to include a statement in their journal articles which provides information on how third parties can access any underpinning research data.

- The UK Reproducibility Network is ten universities working to align their staff with open-science initiatives — reproducibility sections in grant applications and reporting checklists in article submissions, for example. They are also cooperating to consider larger changes, from training to hiring and promotion practices. https://www.nature.com/articles/d41586-019-03750-7

- The University College London Office of the Vice-Provost (Research) has a UCL Statement on Transparency in Research that recommends their researchers:
  - make their research methods, software, outputs and data open, and available at the earliest possible point, according to statements such as the Berlin Declaration
  - describe their data according to FAIR Data Principles, ensuring that it is Findable, Accessible, Interoperable and Reusable
  - deposit their publication, data and software outputs in open access repositories

- The University of Bristol has a Research data management and open data policy encouraging researchers to publish data in an appropriate digital format (i.e. non-proprietary) wherever possible, in order to facilitate data re-use.

- The high-energy physics community have adopted policies and practices to facilitate data sharing at large scales to enable reproducible research: https://www.nature.com/articles/s41567-018-0342-2

- The American Journal of Political Science (AJPS) has a Replication & Verification Policy that requires scholars to incorporate reproducibility and data-sharing into the academic publication process. Acceptance of a manuscript for publication in the AJPS is contingent on successful replication of any empirical analyses reported in the article: https://ajps.org/ajps-verification-policy/

- Nature Communications requires authors to supply for publication the source data underlying any graphs and charts, and uncropped, unprocessed scans of any blots or gels: https://www.nature.com/articles/s41467-018-06012-8

Q: What are some examples of public and private funders that have introduced mandates to ensure that the data and methods underlying articles are available?
A: The Sherpa Juliet database indicates that 12 public and private funding agencies in the US mandate data archiving as a condition of receiving funds:
https://v2.sherpa.ac.uk/view/funder_by_data_req/requires.country.html

The White House's Office of Science and Technology Policy issued a memo in 2013 directing all federal agencies that provide $100 million or more in research funding to come up with plans requiring grant recipients to share the results of their research with the public. Sixteen federal agencies the give research grants have adopted policies such as Data must be openly available at the time of acceptance of research manuscript’
https://guides.library.unr.edu/openaccess/mandates

Q: What does reproducibility, openness, and transparency mean, and how do they relate to similar concepts?

A: Is important to be aware that the definitions of some of these terms vary from one research community to another. For example, the definition of ‘reproducibility’ and ‘replicability’ have opposite meanings in some disciplines, see chapter six of the NASEM report for more discussion of this: https://www.nap.edu/read/25303/chapter/6

Transparency: Research is transparent if the methods, analysis and data are reported and disseminated openly, clearly and comprehensively.

Reproducibility: The findings of a research study are reproducible if they can be obtained in an independent study using the same methods and data as those used in the original study. cf. https://arxiv.org/abs/1802.03311

Openness: The sharing of resources and ideas, with emphasis on making these publicly and freely available for future use. cf. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5066505/

Integrity: Research has integrity if it has been conducted, analysed, reported and disseminated honestly and to a high standard, ensuring that the research and its findings can be trusted.

Replicability: A research study is replicable if its results can be obtained in an independent study using the same methods as those in the original study, but using different data or a new context.

Robustness: Research findings are robust if they can be consistently produced a) across a range of tests within a research study, and/or b) across different research studies that involve variations in assumptions, variables or procedures.

Computational reproducibility: the ability to take the raw data from a study and re-analyze it using only a computer to reproduce the final results, including the statistics. cf. https://doi.org/10.1126/science.aah6168
Empirical reproducibility: when detailed information is provided about non-computational empirical scientific experiments and observations. In practice this is enabled by making data freely available, as well as details of how the data was collected and analysed, such as laboratory protocols, reagents, organisms, etc.
Notes on the drafting process

Faculty Council on Research item on ‘Open Science by Design’


Motivations
- Ensuring the Reliability of Knowledge and Facilitating the Reproducibility of Results
- Faster, More Creative, and More Efficient Knowledge Creation
- Expanding Access to Knowledge and to the Research Enterprise

Recommendations:

1. Research institutions should work to **create a culture that actively supports Open Science by Design** by better rewarding and supporting researchers engaged in open science practices. Research funders should provide explicit and consistent support for practices and approaches that facilitate this shift in culture and incentives.
2. Research institutions and professional societies should **train students and other researchers to implement open science practices** effectively and should support the development of educational programs that foster Open Science by Design.
3. Research funders and research institutions should **develop the policies and procedures to identify the data, code, specimens, and other research products that should be preserved for long-term public availability**, and they should provide the resources necessary for the long-term preservation and stewardship of those research products.
4. Funders that support the development of research archives should work to **ensure that these are designed and implemented according to the FAIR data principles**. Researchers should seek to ensure that their research products are made available according to the FAIR principles and state with specificity any exceptions based on legal and ethical considerations.

Plan:

1. Discuss report within FCR and FC Libraries, FC Faculty Affairs, FC Teaching and Learning, and consider process that we used for the Open Access policy: [https://www.washington.edu/faculty/councils/](https://www.washington.edu/faculty/councils/)
2. Draft a Class C resolution for the faculty senate to raise awareness of the recommendations [http://www.washington.edu/admin/rules/policies/FCG/FCCH22.html#2268](http://www.washington.edu/admin/rules/policies/FCG/FCCH22.html#2268)
3. Draft a Class B resolution to require campus-based research funding to include policy for long-term availability of research products, e.g., to include some language in the call for proposals that supports Open Science by Design.

Discussions (with presentation: xxx)

**FCR meeting 14 Nov 2018**

Each field will be quite different in how they deal, need to discuss how to do it, might not always increase reproducibility, some also want to share code, with things, some fields require open availability, how does the university deal with intellectual property and open science? What about researchers that might attract bad actors, Pandora’s box is opened, we need to pay attention, huge topic that needs to be addressed.
The 2019 charge letter from the Faculty Senate recommends that the FCR:

Per strategies presented in the UW Faculty 2050 document, examine Faculty Code Section 24-32 and begin to discuss how might “Community Engaged Scholarship” be better defined, assessed, and recognized at the University.

Definitions:

Community: A group of people external to the campus who are affiliated by geographic proximity, special interest, similar situation or shared values. Communities may share characteristics such as age, ethnicity, gender, or sexual orientation.

Community engagement is “the application of institutional resources to address and solve challenges facing communities through collaboration with these communities.” Community engagement describes collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.

Outreach has traditionally been associated with the dissemination of information to public audiences. Such dissemination has taken numerous forms but it is typically one-way communication rather than an exchange. Engagement implies a partnership and a two-way exchange of information, ideas, and expertise as well as shared decision making.

Community Engaged Teaching
- Developing and delivering community-based instruction, such as service-learning experiences, on-site courses, clinical experiences, professional internships, and collaborative programs
- Developing and delivering off-campus teaching activities such as study-abroad courses and experiences, international instruction, and distance education courses
- Developing and delivering instruction to communities and other constituencies

Community Engaged Research and Creative Activities
- Writing papers for refereed journals and conference proceedings
- Creating exhibits in educational and cultural institutions
- Disseminating community engaged research through public programs and events
- Conducting and disseminating directed or contracted research
- Conducting and reporting program evaluation research or public policy analyses for other institutions and agencies
- Developing innovative solutions that address social, economic, or environmental challenges (e.g., inventions, patents, products, services, clinical procedures and practices)

Community Engaged Service
- Consulting and providing technical assistance and/or services to public and private organizations
- Writing position papers for the general public
- Collaborating with schools, businesses, advocacy groups, community groups, and civic agencies to develop policies
- Providing leadership in or making significant contributions to economic and community development activities

**Draft of the FCR’s Recommendations for a Class C resolution:**

- All units develop rubrics with definitions, with categories of expectations (e.g. “meritorious” and “excellent”), and metrics as evaluation tools (e.g. “Quality, Impact, Productivity” or “Rigor, Impact, Dissemination, Leadership and Personal Contribution” or “Competence, mastery, expertise”), and with examples of indicators of impact, to standardize and communicate their values and norms of community engaged teaching, scholarship and service, as an activity distinct from service.
- All units intentionally “onboard new faculty” with the goal of introducing policies and rubrics related to community engaged work and other relevant expectations for promotion and tenure
- Faculty code be edited to add a new letter-item to chapter 24


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Faculty are encouraged to combine their scholarly skills, resources, and talents with groups external to the campus to enrich scholarship, research, and creative activity; enhance curriculum, teaching, and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good. Scholarship that engages a faculty member with communities in a collaborative process is an important contribution that is distinct from public service. Community engaged scholarship is valued for its distinctive emphasis on reciprocity, mutually beneficial exchange, shared authority, and co-creation of goals and outcomes.

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