

Minutes*

Senate Research Committee
Monday, May 14, 2007
1:15 - 3:00
238A Morrill Hall

- Present: Steven Ruggles (chair), Arlene Carney, James Cotter, Dan Dahlberg, Donald Dengel, Genevieve Escure, Tryphon Georgiou, Bridget Helwig, Shikha Jain, Paul Johnson, Jennifer Linde, James Luby, Ellen McKinney, Timothy Mulcahy, Selam Rodriguez, Thomas Schumacher, George Trachte, Barbara VanDrasek, Sanford Weisberg, Jean Witson
- Absent: Linda Bearinger, Richard Bianco, Sharon Danes, Robin Dittman, Steven Gantt, Kathryn Olson, Mark Paller, Federico Ponce de Leon, Virginia Seybold, Charles Spetland, Michael Volna
- Guests: Dawn Errede (Environmental Health and Safety); Associate Vice President Frances Lawrenz; Greg Brown (Office of the General Counsel); Thomas Klein (chair, Budget Model Subcommittee)
- Other: Peggy Sundermeyer (Office of the Vice President for Research); Jon Binks (Office of the Provost)

[In these minutes:

1. ICR and Centers Policies

Professor Ruggles convened the meeting at 1:15 and reported that Committee members had, by electronic mail, endorsed the revised Indirect Cost and Centers policies, with a caveat about involvement of the PI. He said he would work with Vice President Mulcahy to insert language about the PI.

2. Research Safety Policy

Professor Ruggles welcomed Dawn Errede to the meeting to discuss a new Research Safety Policy. Ms. Errede explained that she is the Department of Environmental Health and Safety Chemical Hygiene Officer, a position required by OSHA federal lab safety standards; she was hired in 1990 when the standards were adopted. She established a network of safety officers to serve as liaison with each department and works with each on what they need to do to comply with the law. She has also been a departmental safety officer and is a Ph.D. student subject to the rules, so she knows what their effects are and what people must do.

Ms. Errede distributed a handout with an overview of policies related to research and policies for which Environmental Health and Safety is responsible. The University's Research Safety Policy is intended to "preserve the health, safety and well being of its faculty, staff, students and visitors" in the

* These minutes reflect discussion and debate at a meeting of a committee of the University of Minnesota Senate; none of the comments, conclusions, or actions reported in these minutes represents the views of, nor are they binding on, the Senate, the Administration, or the Board of Regents.

course of conducting research. It is the right thing to do; it is also required by federal law. She reviewed a number of definitions in the policy and noted that the Laboratory Safety Plan, "a written plan that describes policies, procedures, equipment, personal protective equipment and work practices that are capable of protecting employees from the safety and health hazards in laboratories." The plans help departments comply with the policy and are not optional.

A related procedure addresses Laboratory Safety, Ms. Errede noted. There are three primary laws that apply to people who work with chemicals: the federal Laboratory Safety Standard, which requires chemical hygiene plans; the Minnesota Employee Right to Know Act (MERTKA), which requires employers to develop and implement written procedures to control job-related hazards; and the Toxic Substances Act, which requires that "prudent laboratory practices be developed and documented for research involving new chemicals that have not had their health and environmental hazards fully characterized." To comply with these and other regulations, she puts a template Laboratory Safety Plan on the web; units customize it for their needs or develop one tailored to their specific programs.

Professor Ruggles asked if these plans are approved and available somewhere. They are not on the web but must be available to all researchers in the lab, Ms. Errede said. Who approves them, Professor Ruggles asked? Ms. Errede asks that they all be sent to her and she looks them over to be sure they are complete, although she would not say that she "approves" them. The research safety officers in the unit approve them. It helps to have these in place because when a PI comes in with a grant and needs approval, she can look up the statement to see that the work is covered. She goes over the requirements with the safety officers in training and also does refresher sessions at intervals.

Another procedure discusses the Research Safety Program, "a cadre of departmental or unit Research Safety Officers to implement the University of Minnesota's Research Safety Policy and procedures." These officers act as a liaison with Environmental Health and Safety, know and promulgate health and safety rules for their departments, develop a research safety plan, coordinate refresher training for researchers and supervisors, coordinate audits of research space and programs in their departments, and keep records to document training and audits for compliance verification. They may not personally do all this work but are responsible for coordinating it and seeing that it is done. Each department head is responsible for appointing a technically-qualified Research Safety Officer, Ms. Errede said.

What's a lab, Professor Ruggles asked. That is defined in the Laboratory Safety Plan, Ms. Errede said—it is where chemicals are handled on laboratory scale. There must be chemicals involved for the purposes of these policies and procedures. (They also cover biological and physical hazards.) Is the requirement for annual training only for labs with chemicals, he asked. It is, Ms. Errede said, and technically also blood-borne pathogens.

What about labs that are used for teaching or classroom demonstrations, Professor Luby inquired. Ms. Errede said they fall outside the procedures but the documents do say instructors should take care. Students are not employees and can sue the University if they are harmed.

Ms. Errede turned next to the procedure entitled Laboratory Construction, the purpose of which is to "assure that laboratories and service workers are provided with facilities which meet basic legal and industry safety standards. In addition, assure general design uniformity among University of Minnesota laboratory facilities." Ms. Errede said this is a little weird because there are University construction standards for labs, established in 2002. The idea was that they would be updated every two years, but

then a new set of administrators saw that as more optional, which was a problem for Environmental Health and Safety. 9/11 created a lot of regulations for them, including new building requirements, that have to be written into construction standards. They have contacted other departments but have not been involved in the development of construction standards so they are revising their own.

Ms. Errede reviewed the appendices to the policy and procedures, standards for lab design, fume hoods, etc. that they have updated. One of them is new, a Biosafety Level 3 checklist. She said they are critical. As an example, the standards do not allow the recirculation of lab air; it could be hazardous from fumes or biological agents. Energy-efficient buildings, however, recycle air, and a unit that has a new building wants to recirculate the air. Environmental Health and Safety has to tell them they cannot do so, so they need to get an agreement not to fight this same battle over and over again.

Vice President Mulcahy said he thought building codes are codes and that it should be the responsibility of Facilities Management to build them to the codes. This is the first time he'd heard there is discretion in the codes. There are international standards that the building code officer enforces, Ms. Errede said, and those standards cover other sets of standards. Some want to pull back on the standards. There are no state or federal mandated codes, Dr. Mulcahy asked. There are international standards which Environmental Health and Safety say must be enforced.

Is the issue getting the University to adopt standards that will be followed? It is, Ms. Errede said. This policy does not do that, Dr. Mulcahy asked? Someone must say what will be policy, correct? Ms. Errede said this Committee can say that the University needs adequate research facilities that must be safe. Dr. Mulcahy said one can make the case that someone must decide. There are a lot of standards, Ms. Errede said, and the Committee could say that there must be adequate standards in place to build labs.

Professor Ruggles said there are two and one-half pages of standards that probably change all the time. There should be something more generic in the policy and reference to a document that would contain the current standards. Dr. Mulcahy said the policy should speak to conceptual reasons, not explicit standards. Ms. Errede agreed and said standards are in flux. If they are in flux, how does the University manage liability, Professor Johnson asked? Someone knowledgeable must decide, Professor Ruggles said. Who, Professor Johnson asked? Mr. Schumacher said the responsible officer is Vice President O'Brien and the people who report to her. What is the role of this Committee in terms of the information she receives in order to make decisions, Professor Johnson asked? This policy gives the Vice President for Research a seat at the table, Mr. Schumacher said, so that when research facilities are being built, the Vice President for Research is involved.

Is the Committee being asked to do something, Professor Ruggles asked. Professor Johnson said it should take action to enable Environmental Health and Safety to call for enforcement of standards. Professor Dahlberg said that most of the research money coming to the University comes from DOE, NIH, and NSF; they have guidelines that the University should follow to avoid liability and help obtain funding. Mr. Schumacher said that each case must be evaluated for unique circumstances but the Committee can recommend guidelines. Ms. Errede, he said, is identifying the unique research risk in buildings.

Professor Johnson moved that the Committee endorse the recommended policy and procedures and go on record that the Committee noted and supported them. The motion passed unanimously.

Professor Ruggles thanked Ms. Errede for joining the meeting.

3. Research and Scholarly Advisory Council

Professor Ruggles turned to Associate Vice President Frances Lawrenz to discuss the Research and Scholarly Advisory Council (RSAC).

Dr. Lawrenz commented that Vice President Mulcahy thought about creating the group since he came to the University, a panel of prestigious researchers to advise him. They spent a lot of time compiling a list of prospective members of outstanding researchers identified by the President and senior vice presidents. Thirteen people have agreed to serve, most of them faculty (and a couple of outstanding P&A researchers). They will serve 3-year terms and meet perhaps once a semester as needed to advise the Vice President for Research office; the RSAC will provide recommendations about how to identify, facilitate, implement and evaluate research initiatives.

Specifically the Committee would provide recommendations on:

- Identification of fruitful research areas
- Peer review processes for selection of funding initiatives (e.g., the MN Futures applications or single institutional proposals)
- Criteria for assessing the success of initiatives
- Determination of needs for, how to optimize, and how to support the use of space and other infrastructure including ISOs
- Administration of large and/or collaboratively complex projects
- Facilitation of collaboration for research projects (e.g., mechanisms for visiting professorships, research mentorships, etc.)

Dr. Mulcahy recalled that he has spoken about the RSAC before and distinguished it from this Committee. These individuals will provide academic input on a routine basis (for example, when the University can only submit one proposal in national competition, review of infrastructure needs in the arts and humanities and social sciences, issues with ISOs and additional services needed, etc.). It will be an advisory panel.

More like peer review, not a policy group like this Committee, Professor Ruggles surmised. Dr. Mulcahy agreed. This Committee could seek the views of the RSAC on issues. The composition of the group was deliberate so it includes the arts and humanities and social sciences, and fields that receive different sources of funding or no funding, across disciplines.

4. Copyright Policy

Professor Ruggles welcomed Mr. Brown, from the Office of the General Counsel, to the meeting to discuss the revised copyright policy.

Mr. Brown said he would respond to concerns raised at the last meeting of the Committee as well as at other meetings. The Faculty Consultative Committee and the Academic Freedom and Tenure Committee both considered the draft policy and the concerns expressed were consistent with those expressed by this Committee. In particular, the adequacy of the timing of action on the report and the

adequacy of consultation (issues he will not address but that should be raised with the Provost); he will discuss the substantive points that have been raised. There are three major issues: the extent to which use of "substantial University resources" entitles the University to copyright ownership, the scope of the University's right to use faculty-owned instructional materials, and the conflict-of-interest provisions, especially as they apply to adjunct faculty.

Committee members reviewed a revised draft policy. The conflict-of-interest provision has been removed, Mr. Brown pointed out. Those drafting the policy concluded that conflict-of-interest should not be in the copyright policy because there is a University policy on outside consulting that covers the subject. The conflict-of-interest provision in the consulting policy does bar a faculty member from licensing his or her instructional materials to a competitor institution. (The policy also has robust procedures to protect the faculty before the University asserts its rights.)

On the scope of the University's right to use instructional materials, it does not include the right to license materials outside the University. The revised version calls for the University to exercise its rights for its educational and administrative purposes.

Professor Ruggles said that the old Regents' policy considered instructional materials like research materials except for those jointly created; what rationale is there for the change? This seems to be a reduction of faculty prerogatives. Mr. Brown said the right of the University to use instructional materials was established prior to this policy; it is in the current intellectual property policy. But the proposed language extends to all instructional materials. Mr. Brown gave an example: a faculty member uses photographs for a course and a colleague wishes to use them. This policy addresses faculty as both creators and users; the University has the right to use materials created at the University for University teaching.

On the third issue, use of substantial University resources, the provision no longer applies to scholarly works, only to instructional materials. The Committee should be aware, Mr. Brown said, that this provision harkens to the need for fluidity; the policy does not make things concrete because time change. It may also wish to know, he said, that these same words are used by peer institutions (e.g., Michigan, Iowa, MIT, Colorado); Minnesota is not an outlier. There is an advantage to using words commonly used around the country.

Dr. Mulcahy asked if the language of this policy—"substantial"—should be aligned with the policy on commercialization of intellectual property, which uses the term "considerable." Or is there a distinction between the two? There is a difference, Mr. Brown said; in the copyright policy, the issue is DIFFERENTIALLY different or MORE THAN someone else and is department-specific. In the patent context, once institutional resources go beyond a minimal level, the University wants to assert ownership.

Professor Luby asked about a scholarly work that is used as instructional material, such as a book or article that is a substantial feature of the class. The author leaves and the University wants to continue to offer the class. Or what about the faculty member who takes a year off to write a text that makes \$1 million, Professor Ruggles asked? Mr. Brown said that in the case of Professor Luby's example, the University could not assert a right to the book or paper because bringing it into the classroom does not change ownership. In terms of leaves and "substantial University resources," institutional policy suggests that leaves are routinely granted so receiving one would not be a comparatively greater use of University resources.

Professor Ruggles said he had two problems with "substantial University resources." First, if one has a leave to write a textbook, there could be different standards across departments about ownership. Second, the language is vague; who judges "substantial"? Ultimately the decision could be made in a courtroom and anyone could argue either way. It is subjective, Professor Dahlberg agreed, and he asked who decides. The question of "who" is not resolved at the level of regental policy, Mr. Brown said, but in the administrative procedures. As for vagueness, Mr. Brown said there must necessarily be flexibility in the language so the University can address novel situations. There will be a "common law" in a few years with precedents and examples that will help make the language more concrete.

If the decision is to be made by a University officer, the faculty assume the risk, Professor Johnson said. The administrator might decide there were "substantial University resources" when the faculty might not have decided that. If a faculty member is to be given access to resources, one hopes there would have been a prospective conversation, Mr. Brown said; as drafted, the policy allows that and the faculty member should not be given the resources without knowing what the University's position will be. If there is a disagreement, who decides, Professor Johnson asked? Is there a board or court someone can go to? Usually in those cases it is a jury of peers. Professor Ruggles surmised that the administration would decide and the faculty member could sue if he or she disagreed.

Ms. Witson asked if there is even an issue. What is the number of individuals who receive "substantial University resources" to create instructional materials? Professor Ruggles said the answer could depend; if a faculty member receives a leave, receives aid funds, and develops instructional materials or textbooks that generate a lot of royalty income, there could be a dispute about ownership. It will depend on how one defines "substantial."

Professor Escure recalled that she had made the point about vagueness at the last meeting and suggested that the clause be removed. Mr. Brown repeated that it is not an alien idea, it is one used at other universities, and it is better than the current policy. Professor Ruggles said the language of the policy means that the University can use every textbook written by any faculty member—and there have been thousands—which will not make publishers very happy or it means faculty cannot copyright their own materials. Mr. Brown disagreed and said he was unaware of any instance when the University could assert ownership to a textbook. Students use them, not the University. The language does not encompass the University's right to use textbooks. No one believes the policy should apply to textbooks, Professor Ruggles agreed, but the way the policy is written it does apply to them. It is intended to apply to online, web-based systems, which faculty believe they own like other materials. This policy gives the University the right to use those materials.. But it does not obviate copyright, Mr. Brown pointed out, or the faculty member's right to license the works; it only allows the University to use the materials internally; the faculty member still firmly owns the copyright.

Has there been a case or problem? What is this trying to address, Professor Ruggles asked? There have been situations where the University needs access to course materials. Faculty member A develops a syllabus for and teaches course X; the department chairs wants faculty member B to be able to teach the course as well, but there have been problems with making the material available to faculty member B. And if there are a lot of other materials used in the course, the University would have access to them as well, Professor Johnson observed. It would, Mr. Brown agreed, if they are instructional materials.

The University owns them, Professor Dahlberg said. Mr. Brown said the principle enunciated in the policy carves out a place in the law that generally provides an employer owns everything. The general policy of universities is that the faculty own what they create, Professor Ruggles said. What if a faculty member creates a lab course and sells it and the University says "no," Professor Dahlberg asked. If the materials are not in competition with the University, the policy does not prohibit the sale of the materials, Mr. Brown said. What if the next person develops the materials further and wants to sell them; does the first creator own them? The creator of the derivative materials has no right to the originals, Mr. Brown said, but the creator of the originals has no right to the derivative, either. Is the second person free to license the derivative, using what the first person put in, Dr. Mulcahy asked? Mr. Brown said he or she is not; the second person may only market the change and would need approval from the original creator to use his or her materials—and the University could not grant that right because its rights do not include that authority.

Professor Escure asked about the provision that allows an author to remove his or her name from materials. The idea, Mr. Brown explained, is that if there are modifications to materials, the original copyright holder has the right to ask that his or her name be removed from the modified materials. If the University has the perpetual right to use the materials, it cannot insist that the original author's name remain on them. The original author does have the right to keep his or her name on the materials.

Does the creator have the right to prevent any change to the materials, Professor Georgiou asked? Mr. Brown said the creator has control of the original work but the University has the right to change material to update it. Professor Georgiou contended that some material cannot be updated and the creator should have the right to insist it be kept in its original form. Can someone give material to the University to use but no license to change it? Mr. Brown said the creator retains ownership and controls whether there will be any changes OUTSIDE the University. The policy, however, gives the University the right, if the material is used AT the University, to make changes. The creator may, at any time, ask to have his or her name removed from the material if uncomfortable with the changes. So the creator gives up copyright internally, Professor Georgiou said.

Professor Dahlberg said that if one works for a company, the company owns the work product. Faculty are all paid to produce materials and faculty have the copyright; the University says the materials were created on its nickel and it gets to use the material. He commented that he uses textbooks, parts of which he dislikes and ignores and uses other materials; that does not injure the original work. What is the argument, he asked Professor Georgiou. Professor Georgiou gave an example: he prepares 200 pages of notes for a class; someone else can supplement or add to the notes but he does not see it appropriate for someone else to change the notes. What about the extreme case, Ms. Witson said: she prepares 200 pages of notes on World War II and then leaves the University; someone else who does not believe in the Holocaust takes out references to it; she can insist that her name be removed but she has no rights over changes to the notes that she dislikes. Anyone can do that now, Professor Weisberg pointed out.

There are a lot of disagreements about this policy, Professor Ruggles observed. Mr. Brown said that he would like to clarify, for the Provost's guidance, that the concern is about the University's right to use instructional materials owned by the faculty. Is the Committee opposed to such a right in total or with protection of the faculty member's rights? Professor Weisberg said the Committee cannot be opposed to such a right; people want to protect their own works but they also want to be able to teach and build on the work of their colleagues.

Professor Ruggles said he still had a problem with the University's perpetual right to use because it seems like it applies to textbooks. Mr. Brown says it does not, he said, but it could be interpreted that way. He also said there is too much ambiguity around "substantial." From what he has seen in other institutional policies, Mr. Brown replied, the only way to respond to the Committee's criticism of "substantial" is to delete the language altogether and develop some other phrasing. If that is what the Committee recommends, it will put the University at odds with its peers. Professor Ruggles said he would like to see the other policies and would need clear evidence; he said he was skeptical they would include such vague language. If the policy says "substantial University resources" but does not mean it, the old policy may have been better. Mr. Brown pointed out that the old policy has prohibitions, such as in the definition of academic work and who owns intellectual property rights; this policy clarifies who does NOT have the right to claim ownership (e.g., staff) and is better for the faculty.

Mr. Brown reported that the plan is to bring the policy to the Board of Regents in June. He said that the Faculty Consultative Committee and the Academic Freedom and Tenure Committee had seen it. Professor Ruggles suggested this Committee endorse the request from the Academic Freedom and Tenure Committee that the Provost delay bringing the policy to the Regents until next fall. The Committee voted unanimously in favor of the suggestion.

5. Report from the Budget Model Subcommittee

Professor Ruggles turned next to Mr. Klein for a report from the Budget Model Subcommittee [jointly appointed by the Senate Research Committee and the Senate Committee on Finance and Planning].

Mr. Klein noted that other Subcommittee members were present (Professors Dahlberg, Johnson, and Weisberg) and said the appointment of the Subcommittee grew out of conversations at both committees. The Subcommittee has been very active and has met with deans, department heads, Vice President Pfitzenreuter and had "arithmetic sessions" with other members of the Office of Budget and Finance. The University is a complex organization and has a complex financial system. The Subcommittee has received great cooperation from everyone it has asked for information and is at the point where it is preparing its internal information for a draft report. The Subcommittee has had good discussions among its members about what it has heard and is trying to be agnostic because there are many different viewpoints on financial decisions, it's understandable that everyone has an agenda, depending on where they are in the University and what financial constraints they face. There have been differences in perspective between deans and department heads from the same college. The Subcommittee plans to complete their draft report and bring it to the two committees in the fall.

Professor Weisberg commented that people are very interested in the work of the Subcommittee.

Professor Johnson said that a lot of different issues have come up; the problem is to try to understand the intent and the impact of the budget model on deans, department heads, and ultimately the faculty. It is difficult to get one's mind around what happened. The Subcommittee is timing its report so it can see what happens with the turn of the fiscal year—new rules will kick in then and the Subcommittee wants to see what happens. This is within the Subcommittee's 12 – 18 month original timeframe.

Vice President Mulcahy asked what the charge to the Subcommittee is. Mr. Klein read it: "(1) to consider what impact the new budget model is having on areas of importance to the faculty and staff (e.g., interdisciplinary teaching and research, cost of services and infrastructure support), and (2) to ensure that appropriate feedback mechanisms are in place so that colleges, the central administration, and the two Senate committees are regularly informed about the effects of the new budget model."

Professor Johnson suggested that if one wants a sense of the nature of the debate and the issues, one should look at the March 29, 2007 minutes of the Faculty Consultative Committee, when it had discussions with the President, the Provost, the Senior Vice President for System Academic Administration, and the Senior Vice President for the Health Sciences. FCC members asked a lot of the same questions that the Subcommittee members have been asking. [Those minutes can be found at <http://www1.umn.edu/usenate/fcc/07-03-29.html>] Did they answer any of the questions, Ms. Witson asked? "Sort of," Professor Ruggles said; they acknowledged there were concerns. One example of a concern for the faculty, Professor Johnson said, is what the implications of the budget model are for the core departments versus centers/institutes. What happens to the departments? Do they lose resources? One person told the Subcommittee that it was unfortunate the University adopted the new budget model and moved into strategic positioning at the same time because they are unrelated, Professor Dahlberg recalled. One would have hoped there would be a plan for how the budget model would help advance strategic positioning, but there is no plan.

Professor Johnson recalled that the chair of the Faculty Consultative Committee reported faculty saying they expected there would be a set of resources available to reach the strategic positioning goals but learning that the answer was "no." So it really is a zero-sum game.

When the budget model was discussed at the FCC retreat two years ago, one vice president argued the budget model would lead to an increase in quality because units would have the ability to generate income through teaching and research, and increased income is a measure of quality, Professor Ruggles said. He asked at the time how Classics would feel about that opportunity. The problem is clear: what generates the most money will not get the University to top-three status.

Professor Weisberg suggested explaining the budget model for Committee members who may not be familiar with it. The fundamental idea, he said, is that units (colleges) get to keep the revenues (tuition, fees and Indirect cost Recovery) they generate; in order for the central administration to make up for the money that now stays in the colleges, it allocates the costs of services to the colleges (for libraries, police, buildings, etc.). One recurring issue is that the college is allocated more costs but the decisions about those costs are made centrally and the college has no option except to pay them. The central administration also allocates state funds to support the colleges. So if they need more, they should teach more, Professor Johnson asked? While that is not the intention of the budget model, that is certainly one possible conclusion, Professor Weisberg said; there are unintended consequences. He also noted that the model applies to colleges, not departments.

What is key is that no tub sits on its own bottom, Professor Dahlberg said—no college survives on its own tuition and ICR income; they must have O&M funding, and there is nothing that says if a college increases its tuition or ICR revenues, it will also get to keep its O&M allocation. He said it is still like the old budget, when the central administration decided what would be passed down.

One point of complexity in understanding the budget model is that each college has its own footprint in terms of how it generates revenue and what its costs are, Mr. Klein reported. By definition, a broad University model will have differential effects on colleges (and differential effects within colleges on departments as well—there is a cascading effect). There are a number of things that have happened that seem unintended and it appears the University is trying to make adjustments to the model. The Subcommittee wants to see how the adjustments work in the second year of the budget model..

Professor Ruggles recalled that Michigan had a similar model and abandoned it. Mr. Klein said that Michigan started down the road of a similar model but did not get far and backed off. They do not know the reason, Professor Johnson said. There was widespread faculty objection to the budget model, Professor Ruggles said; is the Subcommittee implying that with a little tinkering it will be OK? Both Professors Johnson and Weisberg responded that the Subcommittee does not know yet, is not implying anything, and that there WILL be recommendations brought to the two committees.

Professor Ruggles thanked Mr. Klein for the report.

Committee members thanked Professor Ruggles for his service as chair of the Committee and gave him a round of applause. He adjourned the meeting at 3:10.

-- Gary Engstrand

University of Minnesota