

New!

Evaluate Provost Candidates on the Web

The Provost Search Committee has developed a Web page that allows members of the University community to evaluate the four candidates for provost and senior vice president for academic and student affairs.

The evaluation forms are accessible from the provost search Web page, which is linked directly to the MTU Home Page. Click on "Evaluation Forms/Bios" and type in your full MTU e-mail address (for example, ttopics@mtu.edu) and your ID number, and then click on "login." You'll then go to a page that lists the four candidates; it also includes links to summaries of their qualifications.

Click on the button next to the name of the candidate you'd like to evaluate. Then go to the bottom of the page and click "choose." You can then evaluate the candidate as "acceptable" or "unacceptable" in eight areas and include additional comments. When you are finished, click on "Send form to the Provost Search Committee."

All the evaluations will be confidential, and you'll only be able to evaluate each of the candidates one time.

Public forums for provost candidate Max Seel, dean of sciences and arts, were held last week.

Upcoming Provost-Candidate Forums

- Thomas Hanley, dean of engineering at the University of Louisville: Thurs., April 13, 7:00–9:00 p.m., M&M U115; Fri., April 14, 2:30–3:45 p.m., MUB Ballroom A
- W. Kent Wray, dean of engineering at Ohio University: Mon., April 24, 7:00–9:00 p.m., MUB Ballroom A; Tues., April 25, 2:30–3:45 p.m., M&M U115
- Gregory Campbell, dean of engineering at Clarkson University: Thurs., April 27, 7:00–9:00 p.m., M&M U115; Fri., April 28, 2:30–3:45 p.m., Chem Sci 211

*My candle burns at both ends;
It will not last the night;
But, ah, my foes, and oh, my friends—
It gives a lovely light.*

—EDNA ST. VINCENT MILLAY

Bowen Updates Senate on Budget Developments

Interim Provost **Stephen Bowen** presented two budget scenarios for the 2000–01 fiscal year and discussed the budget planning process with the University Senate April 12.

The first scenario, and the most optimistic, is based on the Michigan State Senate's recommendation of a 7.4 percent increase in MTU's appropriation plus an additional 3 percent in one-time funding. This scenario projects a balanced budget with no cuts. The second scenario assumes that the state will give Michigan Tech what it did last year, a 5.8 percent appropriation increase with an additional 2 percent in one-time funding. This scenario would require \$1.7 million in expenditure cuts to balance. Neither scenario requires a 5 percent cut in expenditures.

Generally, the state appropriation is finalized by the legislature and the governor in the summer.

Both scenarios project a \$442,000 decrease in tuition revenue, largely because about 250 students will be graduating early because of the change to semesters, Bowen said. The number of entering first-year students is expected to be about the same, with an increase of about eleven. "We're not just sitting there watching the number of students drop," Bowen said. "We now have a fairly aggressive recruitment and marketing plan, and there are costs associated with it. But we can't expect a tidal wave of students after only nine months."

Bowen stressed that the reallocation exercise, in which supervisors developed three-

year budgets for their areas that included 5 percent annual cuts in expenditures, did not mean that these cuts would be implemented. The plan's purpose was to identify areas that could be trimmed or reorganized.

Bowen said the reallocation exercise had worked unusually well in some areas. "I was surprised to see the creative ways some people found to make cuts," he said. "We got some responses that could potentially help units make a more efficient use of their resources."

He reviewed President **Curt Tompkins**'s response to the budget resolution passed by the senate recently, Senate Proposal 9–00. "The president agrees with most of the senate resolution, except for the sense of pending financial crisis," Bowen said. "A variation of 1 percent in the general fund balance is common in any institution of our size and doesn't represent a financial problem."

Michigan Tech almost always operates on a break-even basis because of the need to support new research and education initiatives that are put forward by the faculty, Tompkins wrote in his response to the senate resolution. "In managing our resources, we have to balance the comfort of a contingency reserve against the benefits of supporting new initiatives," he said. "The probable benefits of providing support outweigh the risks."

In addition, the University cannot predict the timing of all its revenues and expenses. "Factors causing variations are active through the last day of the fiscal year," Tompkins said. "In the last three days of FY99, we had a

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Board of Control Member Selected as Man of the Year

Submitted by the News Bureau

Bob Thompson, founder of the Thompson-McCully Asphalt Company and a member of the Board of Control, has been named "Man of the Year" by *Engineering News-Record*. He will be honored at an Award of Excellence Dinner in New York City April 13. Thompson was also selected by the journal as one of the top 25 newsmakers in the construction industry for 1999.

Thompson, who was appointed to the Board of Control in 1997 by Gov. **John Engler**, made national headlines last year when he gave \$128 million to his former employees after selling the business he founded, which is one of Michigan's largest asphalt and paving contractors.

Thompson also donated \$3.5 million to Michigan Tech to establish the Thompson Scholars Program at the University. The gift will fundamentally change the nature of undergraduate engineering education for scholarship recipients by establishing a pavement design, construction, and materials enterprise where students will form a pseudo-engineering company on campus that will mimic a real-life paving firm, with a particular emphasis on asphalt paving. Through the enterprise, Thompson Scholars will gain experience on real-world projects, from developing budgets to solving engineering problems. They will also work as summer interns, gaining valuable experience in the field.

Guide Could Help Industries, Communities

Submitted by the News Bureau

Researchers at Michigan Tech are studying the relationship between industrial plants and their neighboring communities. In the first phase of a \$66,000 grant from the National Science Foundation, Assistant Professor **Hugh Gorman** (Social Sciences) is heading the project to determine ways to strengthen communities' understanding of industrial plants and their impacts on the environment.

Chosen for its proximity to MTU and the complexity and importance of its technical processes, the Murphy Oil Refinery in Superior, Wisconsin, was used as a case study for the project.

"We want to help local communities understand how plants use their shared environment and how that use is regulated," explains Gorman. "Many people are unaware of a plant's processes or precautions and don't know where to go for information."

To answer questions that community members might have, he and a team of graduate students created a guide that describes the refinery's use of the environment. The guide contains information about the community itself, including the refinery's role in the local economy. It also contains detailed information about the refinery, including who owns and operates it, what it produces and how, and its generation of emissions, effluent, and wastes. The guide also describes the pollution control regulations that the refinery must meet, how environmental standards are monitored, potential hazards, and emergency planning requirements.

"We are also having representatives from pollution control agencies and the refinery review it, to see if both would feel comfortable pointing people to the guide for answers to their questions," Gorman says. "After it is reviewed, the guide will be given to the public library and placed on line as a model for similar guides for other industrial plants, to be accessed by anyone with concerns."

MichiganTech

Bill Curnow, executive director, University Relations
Marcia Goodrich, *Tech Topics* editor

To get *Tech Topics* via e-mail, send a message to
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- By e-mail to ttopics@mtu.edu
- By campus mail, send typed copies to *Tech Topics*, University Relations.

Each week, the deadline for submitting information is **Friday at 5:00 p.m.** for publication the following Friday.

The Constructivist Approach

Center for Teaching, Learning, and Faculty Development
By William Kennedy, director



What is learning? Is it coming to know the facts, theories, and the fundamental applications of those facts and theories associated with a recognized discipline? If so, laying out the facts in a lecture, discussing the theories, and posing and solving increasingly more difficult problems and, then, gradually passing the baton to students would seem a useful approach to teaching.

A group of educators known as constructivists, building on the work of Piaget and his followers, view the learning process quite differently. They see learning as the ongoing process of students adjusting their existing mental models to accommodate new life experiences. Learning, by this view, is about the continuous search for meaning. As learning only predictably occurs if the educational experience actually impacts an active mental model of the students, effective educators must become much more familiar with the mental models of their students. Because mental models are supported by fundamental assumptions, another challenge of the constructivist educator is to fathom the assumptions supporting the students' mental models. Figuring out what raw materials your students bring to class is an illuminating, if somewhat disconcerting, experience.

Saying that learning is a search for meaning places earlier and greater emphasis on the students learning concepts rather than facts or data in isolation. Learning, by the constructivist view, is the process of students constructing their own new conceptual understandings based upon processing stimuli that challenge their existing mental models. Technically speaking, there are no right answers, only the successive adoption of

more robust, more predictive, and/or more comforting, or somehow more desirable mental models. An underpinning of the constructivist approach is that students must learn to assess the utility of their own learning, to do their own quality control assessment. Developing the capacity for lifelong learning depends on the student's ability to assess the value of adopting, modifying, or rejecting a different mental model.

Socratic dialogue, almost by definition, would be an example of a constructivist approach to instruction. The teacher progressively probes and questions the student to determine the robustness and rigor of his/her mental models. The teacher's skill lies in fathoming the strengths and weaknesses of the student's ever-changing conceptual understandings as the learning evolves. The effective practitioner of this instructional mode constantly evaluates the student's progress by artfully engaging and provoking the emergence of ever more useful mental models until, presumably, the student's understanding matches or even outperforms the teacher's. Well, it could happen! Maybe there's an Einstein or a Newton in your class.

Discovery learning, emphasizing hands-on experimentation and problem solving, and undergraduate research schemes, in which the student becomes the apprentice gradually coming to adjust his/her mental models against those of the research professor, can be seen to operate in consonance with the constructivist approach, as well.

Endeavoring to engage our students' hearts and minds by carefully and creatively challenging their evolving understandings may be one key to overcoming the general lethargy and lack of engagement we experience when we adopt the more traditional "cover the material" approach.

News You Can Use: Recall of Killer Cedar Chests

(The following is extracted from a March 30 press release issued by the Consumer Products Safety Commission.)

In cooperation with the US Consumer Product Safety Commission, The Lane Company is calling for a renewed search for cedar chests to replace their locks. In 1996, Lane recalled 12 million chests with lids that automatically latch shut when closed, following reports of six children suffocating inside the chests.

Since then, another child has been killed and two others nearly suffocated when they became entrapped in the chests when the lid closed and automatically latched shut.

All "Lane" and "Virginia Maid" brand cedar chests manufactured between 1912 and 1987 need to have their locks replaced. The chests are often handed down through families, and it is likely that many were purchased second-hand.

Lane is providing new locks, free of charge, that will prevent entrapments because they do not automatically latch shut when the lid is closed. The new locks are easy to install by consumers in their homes.

The brand name "Lane" or "Virginia Maid" is located inside the cedar chest. If the lid latches shut without depressing a button on the outside of the chest, the lock needs to be replaced. Contact Lane toll-free at (888)856-8758 anytime or access their Web site at <http://www.newlock.net> to order the free replacement lock. Consumers should have the chest's serial and style numbers, which are branded on the outside bottom or back of the chest, available when contacting Lane.

Interested in Gardening?

Interested in gardening? Do you have ideas on how to beautify our surroundings? Want to give something back to the community? If so, get involved in a new Campus Beautification Committee, a.k.a. Gardening Club.

If there is enough interest, the group would hold brown bag lunches periodically to discuss activities such as gathering resource information (MSU Extension, Master Gardener, community experts, etc.) and a seed-and-seedling garden swap this May.

The group could also develop community projects, such as community composting, children's gardens, cutting gardens, and serene sitting/study areas, and improve recreation areas.

Organizers welcome a diverse membership of faculty, staff, students, MTU families, and community members from the "just curious" novice to the expert. If you are interested, please contact Diane Koskela (487-2827, dkoskela@mtu.edu) or Renee Marion (487-3026, rmarion@mtu.edu).

PCW Seeks New Members

The Presidential Commission for Women (PCW) is looking for new members to fill some upcoming vacancies on the commission.

The commission advises the University president on gender-related issues and looks into ways to improve the environment for women on campus. Its activities often benefit men as well. The PCW initiated the Professional Staff Salary Equity Study and the establishment of the MTU childcare center.

If you would like to be considered for membership on the Presidential Commission for Women, or if you would like to nominate someone, please contact Sonia Goltz (smgoltz@mtu.edu) or Sue Beske-Diehl (sbeske-d@mtu.edu). The names submitted to us will be given to the University Senate, Staff Council, the MTU president, and the PCW as nominees.

MTU Notables

Associate Professor **Mary Durfee** (Social Sciences) was re-elected US co-chair of the Lake Superior Binational Forum at its April 2000 meeting in Thunder Bay, Ontario.

Two seniors in the Department of Materials Science and Engineering's Mineral Process Engineering program have received SME scholarships. **Kari Buckmaster** was awarded the \$1,500 Coal Division Scholarship, and **Skye Marie Malette** has been given the \$1,000 Mineral and Metallurgical Processing Division Scholarship.

"These are very competitive scholarships, and Michigan Tech has done really well to get two of them," Department Chair **Calvin White** said. "They recognize not only outstanding academic qualifications but also dedication to the field of mineral processing."

Geoscientists Use Utah's National Parks for Virtual Course on CD-ROM

Submitted by the News Bureau

Geoscientists at Michigan Tech are using the unique features of Utah's national parks to build a virtual course on CD-ROM and video to help teachers understand earth-science mysteries and problems.

"We selected the parks of Utah as the focus of our educational modules because of their exceptional geologic exposures," says Associate Professor **Jackie Huntoon** (Geological Engineering and Sciences). "But you won't have to go to Utah to benefit from this course, because the course is portable and the problems addressed in the program can be found in any part of the country."

Huntoon and colleague Associate Professor **Gregg Bluth** are heading a multi-talented team of professionals and undergraduates that hopes to complete a fifteen-module multimedia teaching laboratory in three years. Their work is being supported by a \$428,000 grant from the National Science Foundation and smaller grants from the Directorate of Geosciences and the Michigan Space Grant program.

"We got the idea for this project because of a lack of geoscience teachers at the K-12 level and the problems that stem from that," says Huntoon. "What generally happens is that a student takes a series of courses designed to build knowledge progressively. But even if he takes all the courses in the series, he ends up with a compartmentalized view of the subject and related problems, and doesn't know how it all meshes together. We wanted to correct that problem."

Michigan Tech's virtual course will provide hands-on exercises that can be performed anywhere and are intended to give users experience analyzing geologic processes and their products. A course kit will contain extensive lesson plans, key rock samples, relevant geologic and topographic maps, references from the technical and popular literature, and course evaluation materials. A video will provide in-depth information about the remote field sites and techniques used by students and researchers in the field to solve problems.

The basics of the course are taken from a

summer field institute taught by Bluth and Huntoon in Utah each summer.

"Our summer program has been well received by both the teachers and undergraduates who have participated," says Bluth. "To put this course on CD-ROM is really an idea that sprang from Jackie's long-term research in Utah. Students have told us they've learned more in the summer institute than in all the other geology course work they've taken during their undergraduate careers."

"Working in the field is the creative part of science," Huntoon said. "It's where you have a chance to create hypotheses and follow them up on site." Having undergraduates participate in the summer institute is a new approach.

"Aiming a field course toward beginning students is unique," Bluth said. "As an undergrad, you usually do your field work last and that's when you have some of your best experiences and make some great friends—and then you graduate and may not ever see these people again."

"By reversing this order you make good friends early in your undergraduate career, and you stay together until graduation three or four years later. This gives students more confidence early in their careers and greatly helps open up classroom discussions."

"What we're really trying to do is change the whole format of education," says Huntoon. "We want to teach students to question and think using the Socratic method. Most educators seem to think that inquiry-based learning is much more effective than memorization. But it's hard to change from the lecture-based format to one that focuses on the process used to get to the answer or solve the problem. We feel that if we can get teachers to incorporate these course ideas into their own programs, it will facilitate the implementation of this new process."

"When you're faced with a situation where you have to think a problem through and evaluate each of your assumptions because the parameters are such that no one knows for sure what the correct answer is—that's how you develop new knowledge."

Internet2 Day Technology Fair April 18

Interested in using on-line digital library holdings in your teaching? Want to try desktop videoconferencing? Then come to the Technology Fair during Internet2 Day, Tuesday, April 18, in Memorial Union Ballroom A.

You can also visit with technology vendors and find out about Internet2 faculty support, or try out Internet2 application demos and high-resolution video equipment. Vendors include Apple Computer, Mitel Corporation, Sun Microsystems, Thalner Electronics, and others. The Technology Fair will be held from 1:30 to 4:00 p.m., with a reception planned from 3:30 to 4:00 p.m.

For more information about Internet2 Day, see <http://www.i2.mtu.edu/i2day/> or call 487-2827. Mitel Corporation and Information Technology are co-sponsoring this conference.

USAF Intelligence Officer Here April 17-18

Aurea Rivera, chief of the National Air Intelligence Center's Technology Division, will be giving two talks during her visit to campus next week.

Rivera, who holds master's degrees in systems engineering and electrical engineering from Wayne State, will present "Emerging Technologies in the Twenty-first Century" on Monday, April 17, at 4:30 p.m. in ROTC 201. She will examine changes in commercial and military concepts since World War II and the impact those changes will have on warfare in the future.

Her second address, "The Dynamics of Women and Minorities in Engineering," will be held on Tuesday, April 18, at 5:00 p.m. in the ROTC Graduate Student Center. At this talk, a make-your-own-sandwich bar will be provided.

Rivera's early work at the National Air Intelligence Center on foreign airborne radar warning systems has provided the foundation for US threat modeling and simulation efforts. Now, as chief of the Technology Division, she leads the US effort to assess foreign countries' aerospace technological capabilities, limitations, vulnerabilities, and any related technology transfer.

Rivera, who comes from Mayaguez, Puerto Rico, was the first Hispanic woman to be promoted to the grade of GS-15 at Wright Patterson Air Force Base and the first woman to achieve that grade at the National Air Intelligence Center. Among her many awards and honors, she was named Aeronautical Systems Center Woman of the Year for Science and Engineering, and is the Air Force representative to the National Intelligence Council's Scientific and Technical Intelligence Committee.

She earned a BSEE with honors from the University of Puerto Rico and is enrolled in the doctoral program at the University of Dayton.

Rivera's visit is sponsored by the Women and Minorities Lecture Series, the Air Force ROTC Department, and the Department of Electrical and Computer Engineering. For more information, contact Glen Archer at 487-2652 or gearcher@mtu.edu

Reminder—Merit Award Nominations Due April 19

Just a reminder: Nominations for the Michigan Tech Fund Merit Awards are due by April 19.

Nomination forms are available at the Wadsworth Hall manager's office, the J. R. Van Pelt Library circulation desk, the Campus Store, and the Meese Center. You can also call Debbie at 487-3324 to have a form sent to you.

The Funniest Einstein-Wannabe-Who Never-Made-It at Michigan Tech April 27

Submitted by University Cultural Enrichment

Josh Kornbluth is *funny!* Part stand-up comedian, part hilarious storyteller, part character actor, he's been compared to Woody Allen and Lily Tomlin. That description should give you an idea of the event taking place in Fisher 135 at 8:00 p.m. on Thursday, April 27: a one-man show starring one of the funniest Einstein-wannabes-who-never-made-it you could ever wish to meet. Don't let the title of the show, "The Mathematics of Change," mislead you. It may sound like a lecture, but it's not. The MTU Student Entertainment Board brings this one-man-riot to campus as an end-of-the-season gift to campus and community, and the show is free!

Kornbluth's story is autobiographical, sometimes painful, sometimes poignant, always entertaining. When he was nine years old, his father told him he would be the greatest mathematician that ever lived, and young Josh believed him. In school he was a nerd who knew no bounds, getting the better of a tyrannical math teacher and even the class bully with his genius math skills. On graduating from high school, the math wiz entered Princeton as "Lord of Numbers," but it wasn't long before things just didn't add up and his pride took a fateful fall. He "hit the wall" with calculus and ended up with a degree in political science instead of math. However, his massive miscalculations do add up to a very entertaining ninety-minute monologue that'll have you laughing to the *n*th degree.

With a deadly eye for the human and architectural quirks of an Ivy League campus, Kornbluth takes the audience through his first tumultuous semester at Princeton, starting off by painting a satirical picture of orientation

In Print

Associate Professor **Craig Waddell** (Humanities) has edited a book, *And No Birds Sing: Rhetorical Analyses of Rachel Carson's Silent Spring*, including a collection of original essays on Carson's classic environmental call-to-action. Waddell also authored one of the essays in the book.

Director of Marketing Communications **Dennis Walikainen** (University Relations) was quoted in an article by Mark Clayton, "Peeking Parents," in the March 14 edition of the *Christian Science Monitor*, regarding listservs for the parents of college students, such as MTU's ParentNet.

Assistant Professor **Jaroslav Drelich** (MME) has edited a book, *Apparent and Microscopic Contact Angles*, that chronicles the proceedings of the International Symposium held in conjunction with the American Chemical Society meeting in Boston, August 24–27, 1998. Drelich also

rites. He is subjected to large doses of humiliation when he finds that part of orientation involves learning to swim; he is terrified of water. Later he finds a part-time job in a biology laboratory, but discovers he lacks the stomach to inject mice with a carcinogen, and in his ineptitude ends up sticking himself. He's obviously lived to tell the tale.

Whether he's impersonating a surly teaching assistant or describing experimental physicists ("guys with advanced degrees who turn knobs"), Kornbluth is a terrific mimic. His cast of larger-than-life characters—his burly Communist father, Princeton's WASP-y president, a female Russian swim instructor afloat with fluttering backstroke, and a catfish with a mean underbite, among others—are brilliantly portrayed. He explodes onto the stage at the beginning of the show and maintains energy and intensity throughout. His only prop is a chalkboard (he'll surely appreciate the generous supply on the Fisher stage) along with a copious supply of chalk. He tells extraordinary anecdotes of campus high jinks, does dazzling math tricks, such as "casting out 9s," an amusing check for addition problems, and, in his unique brand of performance art, moves effortlessly between what the *New York Times* calls "rollicking entertainment and pained self examination." Kornbluth's award-winning monologues have been published and have enjoyed critically acclaimed off-Broadway and Actors Theatre of Louisville runs. He's now writing a script for one optioned by Universal Pictures and another by Miramax.

This event is funded and presented by the Student Entertainment Board and coordinated through the University Cultural Enrichment Department (487-2844).

authored the paper "Instability of the Three-Phase Contact Region and Its Effect on Contact Angle Relaxation" included in the book.

Associate Professor **Dieter Adolphs** (Humanities) authored the article "Cultural Studies und Critique of Power: Eine Herausforderung für die Deutschstudien in Nordamerika," in *Jahrbuch Deutsch als Fremdsprache: Intercultural German Studies*, Vol. 25 (1999).

Two mystery novels by Professor Emeritus **Harley Sachs**, *Conspiracy!* and *The Mystery Club Solves a Murder*, were broadcast by Oregon Public Broadcasting last month. The third edition of his professional writing monograph, "Freelance Nonfiction Articles," previously published by the Society for Technical Communication, is now available in an updated version at <http://ElectricUmbrella.com>.

Proposals in Progress

Investigators, their proposals, and their potential sponsors are

- **Soner Onder** (Computer Science), "Power Adaptive Microarchitecture and Compiler Design for Mobile Computing," University of Arizona
- **Gopi Podila** (Biological Sciences), **Leland Cseka**, and **David Karnosky** (SFWP), "Functional Analysis of PtAGL4 in Early and Abundant Flowering Transgenic Trees," USDA
- **Gary McGinnis**, **Mark Manninen** (SFWP), and **Janice Glime** (Biological Sciences), "Biological Processes for Treatment of Greenhouse Gases," Department of Energy
- **Gary McGinnis**, **J. Erickson**, and **R. Ross** (SFWP), "The Long-Term Effect of Flooding on Residential Housing," NSF
- **Laurent Matuana** (SFWP) and **Julie King** (Chemical Engineering), "Photodegradation and Stabilization of Polyvinyl Chloride/Wood-Fiber Composites," NSF
- **Ghatu Subhash** and **Ibrahim Miskioglu** (ME-EM), "Investigation of the Influence of Matrix Resin Fillers on Impact Strength of Braided Textile Composites," ARO
- **Sheila Grant** (Biomedical Engineering), "Detection of Biological Activity through the Development of a New Optical Deposition Method," Whitaker
- **David Miller** (Chemical Engineering), "Rapid Generation and Evaluation of Early Process Alternatives," NSF
- **Kurt Pregitzer**, **Andrew Burton**, **David Flaspohler** (SFWP), **Sarah Green** (Chemistry), and **Charles Kerfoot** (Biological Sciences), "The Movement of Elements through Ecosystems: Major Research Instrumentation for the Integration of Research and Education," NSF
- **Debra Wright**, **David Nelson** (Biomedical Engineering), and **John Beard** (ME-EM), "Senior Engineering Design Projects to Assist Disabled Persons in Michigan's Copper Country," NSF
- **Tom Van Dam** (Civil and Environmental Engineering), **Larry Sutter** (Technology), **Julie King** (Chemical Engineering), **Laurent Matuana** (SFWP), **Debra Wright**, and **Sheila Grant** (Biomedical Engineering), "Acquisition of Instrumentation for Microstructural Characterization of Materials that are Non-Conducting or Contain Volatile Phases," NSF
- **Jarek Drelich** (MME), "Adhesion Force Measurements between Fine Particles and Flat Substrates in Liquids Using Atomic Force Microscopy," American Chemical Society
- **Rudy Luck** (Chemistry), "The Nature of the Stretched Dihydrogen Ligand and Other Things," NSF
- **Gregg Bluth**, **William Rose**, and **Colleen Riley** (Geological Engineering and Sciences), "Two-Dimensional Characterization of Volcanic Ash—Applications to Remote Sensing Algorithms and Transport Modeling Experiments," NASA
- **James Wood** (Geological Engineering and Sciences), "A Field Demonstration of the Potential for Sequestration of Greenhouse Gases in Abandoned or Shut-In Gas and Oil Fields in the Michigan Basin," Department of Energy
- **Bogue Sandberg** (Civil and Environmental Engineering) and **Peter Laks** (SFWP), "Corrugated Wood Composite Panels for Structural Decking," USDA
- **Jim Riehl**, **Sarah Green**, **Rudy Luck**, **Bahne Cornilsen**, and **Dallas Bates** (Chemistry), "Acquisition of a Mass Spectrometer for the Chemistry Department at MTU," NSF
- **Jim Baker** (CenCITT) and **Barry Solomon** (Social Sciences), "Development of a Compliance Assistance Center for the Chemical Industry," EPA
- **Gopi Podila**, **Leland Cseke** (Biological Sciences), and **David Karnosky** (SFWP), "Functional Characterization of PtAGL4: A Homeotic Gene Involved in Flowering Time and Floral Development in Aspen Trees," NSF
- **Chung-Jui Tsai**, **Vincent Chiang**, **Scott Harding**, **Chandrashekar Joshi**, and **Jacqueline Popko** (Plant Biotechnology/SFWP), "Integrating Functional Genomics and Metabolic Profiling to Identify Altered Pathways in Fast-Growing Transgenic Aspen," NSF
- **John Crittenden** and **James Mihelcic** (Civil and Environmental Engineering), "Design, Operation, and Optimization of Biofilters for Control of Odorous Emissions," Environmental Research Foundation
- **Cynthia Selfe** (Humanities), "Understanding and Improving Technological Literacy," NSF
- **Jiquan Chen** and **Martin Jurgensen** (SFWP), "Temporal and Spatial Patterns of Soil Respiration and Microclimate and Their Relationships to Disturbances in Teakettle Experimental Forest," USFS
- **Jarek Drelich** (MME), "The Pilot Plant Studies of Polymer Recovery from Waste Generated by the Metalcasting Industry," Recovery Plastics International
- **Timothy Schulz** (Electrical and Computer Engineering), "Development and Analysis of Mine-Detection Algorithms from Mid-Wave IR and Visible Imagery," E-OIR Measurements
- **Ghatu Subhash** (ME-EM), "Exploration of Novel Avenues for Machining of Brittle Materials," Iowa State University
- **Noel Urban**, **Judith Perlinger**, **Richard Honrath**, and **Matthew Peterson** (Civil and Environmental Engineering), "Collaborative Research: Exchange of Gases across the Air-Water Interface in Coastal Regions," NSF
- **Jaroslav Drelich** (MME), "Direct Adhesion Force Measurements in the Drug Particle Substrate Systems Using Atomic Force Microscopy," NSF
- **Alex Mayer** (Geological Engineering and Sciences), "Development of Metrics for Multiobjective Optimization for Environmental Remediation Design," NSF
- **John van de Lindt** (Civil and Environmental Engineering), "Simulation-Based Seismic Reliability Assessment of Structural Systems," NSF
- **Tony Rogers**, **Julie King**, **Andrew Kline**, and **Michael Mullins** (Chemical Engineering), "Tailorable, Inexpensive Carbon Foam Electrodes for High-Efficiency Fuel Cell and Electrochemical Applications," Touchstone Research
- **Don Lueking** (Biological Sciences) and **Carl Nesbitt** (MME), "Application of SAAB-FIG Technology for the Treatment of Silicon Material Phase II," Dow Corning
- **Laigen Li** and **Vincent Chiang** (SFWP/Plant Biotechnology), "Characterization of Monolignol Biosynthesis Pathways: A Comprehensive Biochemical Approach," USDA
- **Richard Gertsch** (Mining/CAMMP), "Mining ISRU Device," ORBITEC
- **Adrian Sandu** and **Phillip Merkey** (Computer Science), "ITR/ACS-SW: Software Design Techniques for the Implementation of Air Quality Models," NSF
- **Leslie Gertsch**, **Richard Gertsch**, (Mining/CAMMP), and **Stanley Vitton** (CEE/CAMMP), "Anchor Testing in Soil-Ice Mixtures for Non-Terrestrial Applications," NASA
- **David Reed**, **Jiquan Chen**, **Margaret Gale**, **Martin Jurgensen**, **Glenn Mroz** (SFWP), "Designing Regeneration Systems for Sustainable Management of Lake States Forested Wetlands," USDA
- **Karl Rundman** (MME), "On the Physical Properties of Potcoke Materials and Molding Sands Produced from Potcoke," Conoco
- **Adrian Sandu** (Computer Science), "Development of Numerical Algorithms for Aerosol Dynamic-Chemistry Models," NSF
- **Dana Johnson** (SBE), "Effects on the Business Performance Model Following Achievement of Quality Certification," NSF
- **Chris Passerello** (ME-EM), "Concurrent Capstone Design Engineering Consortium Using a Global Production System," Kettering University

Senate *Continued from page 1*

\$650,000 swing . . . We manage our general fund budget to achieve a balance of zero on June 30, but whether or not we hit this target precisely depends in part on the 'noise' in the system."

Nevertheless, to better manage the budget, **Dan Greenlee** was hired as controller and **Mike Abbott** was asked to oversee the budget process. "Our ability to manage the general fund has improved over the last year and will continue to improve," he said.

Tompkins stressed that no major cuts are planned. "I now realize that our request for 5 percent reduction scenarios for each of the three years caused inordinate concern across campus about the budget situation and the possibility of layoffs," he said. "We will consider layoffs to balance the budget only under the most extreme conditions, and nothing we know about financial conditions now or in the foreseeable future suggests the possibility of such conditions. . . . To the extent that strategic reallocations are considered, we would expect to retain personnel through internal transfers. But the process leading to such reallocations is deliberate and does not result in sudden layoffs. Reallocation of resources is a sign of a healthy organization; lack of reallocation indicates a stagnant institution."

Bowen told the senate that the biggest

budget-planning challenges are to coordinate the strategic plan with the budget and reallocation possibilities in time to present a budget to the Board of Control Finance Committee on May 2. He agreed to bring a draft budget to the senate for review before the full Board of Control acts on it, on May 19.

Ideally, the University should have a longterm plan in operation, applying the strategic plan to budgets up to three years in advance, Bowen said. Expenses such as new positions and major equipment purchases could be anticipated and included in budgets for the two outlying years.

The senate voted to approve an amendment by Senator **Tom Snyder** (Biological Sciences) to 7-00, New Tenure, Promotion, and Re-Appointment Procedures that would forbid deans or chairs from serving on the personnel committee.

The senate approved 11-00, which provides for mid-semester grades of satisfactory or unsatisfactory for first-year students. It allows students to drop classes through the beginning of fourth week without any record showing on their transcript. Classes dropped between the fourth and eighth weeks are shown with a grade of W on the transcript. For more information on the proposals, see <http://www.sas.it.mtu.edu/usenate/propose/1999-00.html>

Time to Order Robes for Convocation

Michigan Tech faculty are invited to participate in President's Convocation, to be held Wednesday, September 20, at 3:00 p.m.

If you need to rent academic garb, contact Mike DeCaesari at the Campus Store (mjdecaes@mtu.edu or 487-2410) by the deadline, Friday, April 21, to place your order.

This year's convocation will be held in the new Rozsa Center for the Performing Arts (or Fisher 135, if construction isn't completed). A campus march will precede the ceremony.

POSITIONS AVAILABLE AT MTU

Job descriptions will be available at 1:00 p.m. on Friday, or by e-mail at <JOBS@MTU.EDU>.

The following positions will be posted Friday, April 14, 2000, at 1:00 p.m. through noon, Friday, April 21, 2000, in the Human Resources Office.

- Office Assistant N5—Research Services (UAW internal posting only)
- Building Mechanic—Student Development Complex (AFSCME internal posting only)
- Food Service Helper—Residential Dining Services (Regular, thirty hours per week, nine-month position; AFSCME internal posting only)
- Food Service Utility—Memorial Union (AFSCME internal posting only)
- Assistant Manager, Banquet/Catering—Memorial Union

University employees are reminded to apply in writing prior to noon, Friday, April 21, 2000, to be considered as internal candidates for bargaining unit positions only. Applicants from the recall pool will be given first consideration for non-bargaining-unit positions only. Vacancy announcements are normally posted every Friday at 1:00 p.m. in the Human Resources Office. Complete job descriptions are available in the Human Resources Office or by calling 487-2280. More information regarding employment opportunities is available by calling the Job Line at 487-2895. Michigan Technological University is an equal opportunity educational institution/equal opportunity employer.

April

Fair Housing Month

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Thursday

7:00 p.m.—Open forum with provost candidate Thomas Hanley—M&M U115

8:00 p.m.—*Bus Stop*—University Theatre

8:00 p.m.—Tech Arts Fest Film: *The Cook, the Thief, the Wife and Her Lover*—Fisher 135

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Friday

3:30 p.m.—Felicia Hardison Londré, "Putting Student Sleuths on the Trail of Shakespeare"—Walker Theatre

2:30 p.m.—Open forum with provost candidate Thomas Hanley—Memorial Union Ballroom A

8:00 p.m.—*Bus Stop*—University Theatre

8:00 p.m.—Ballets Trockadero de Monte Carlo—Calumet Theatre

15

Saturday

8:00 p.m.—*Bus Stop*—University Theatre

16

Sunday

3:00 p.m.—Keweenaw String Quartet spring concert—University Theatre

17

Monday

4:30 p.m.—Aurea Rivera, "Emerging Technologies in the Twenty-first Century"—ROTC 201

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Tuesday

1:30-4:00 p.m.—Internet2 Day Technology Fair—Memorial Union Ballroom

5:00 p.m.—Aurea Rivera, "The Dynamics of Women and Minorities in Engineering"—ROTC Graduate Student Center

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Monday

7:00 p.m.—Open forum with provost candidate W. Kent Wray—Memorial Union Ballroom

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Tuesday

2:30 p.m.—Open forum with provost candidate W. Kent Wray—M&M U115

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Thursday

all day—Take Our Daughters to Work Day

7:00 p.m.—Open forum with provost candidate Gregory Campbell—M&M U115

8:00 p.m.—Josh Kornbluth, "The

New Staff

Gail Beausoleil has joined the Educational Opportunity Department as summer youth programs assistant. She was previously employed by the US Department of Education as educational coordinator for Western U.P. District high school programs and, from 1996 to 1998, spent two years in Takasaki, Japan, teaching English as a second language to high school students and new Japanese teachers of English. Beausoleil has BA degrees in English and German from Adrian College and an MA in English from Indiana State University. She is married to Patrick Beausoleil and lives in Chassell.