



PEDOLOGUE

Volume 30, Issue 1, 2019

Newsletter of the Mid-Atlantic Association of Professional Soil Scientists

Editor: Del Fanning, DelvinDel@aol.com

Assistant Editor: Barret Wessel, bwessel@umd.edu

University of Maryland Wins National Soil Judging Competition!



The University of Maryland Soil Judging Team continued their dynasty with their 5th national win at the National Soil Judging Competition in San Luis Obispo, California. Pictured left to right: Front Row – Yunxuan Pei, Dyani Frye, Cathelyn Wang (7th Place Individual), Isabella Bruno, Rachael Heisey, Anna Lowien; Back Row – Dr. Martin Rabenhorst (Coach), Jonathan Moy, William Mast, Barret Wessel (Asst. Coach), Aubrey Wiechecki (5th Place Individual), Antonio Vega. Photo credit Jaclyn Fiola. Story on page 4.

PEDOLOGUE (ISSN 2641-662X) is published approximately quarterly by the *Mid-Atlantic Association of Professional Soil Scientists* in College Park, Maryland, USA.

Issues are available online at www.midatlanticsoilscientists.org/pedologue

In this issue

- Calendar of Coming Events Page 3
- Call for future articles/photos Page 3
- MAPSS Officers Page 3
- Soil Judging Win Page 4
- Research Reports: Cover crops and N leaching Page 5
- Days Gone By Page 7
- Business Meeting Minutes Page 9

Editors' comments

This issue of *Pedologie* is the first to incorporate some of our new directions, as announced at the February 2019 business meeting. Our International Standard Serial Number (ISSN) application to the Library of Congress was approved, and this is the first issue to display it. This number adds *Pedologie* to an international database that will be preserved in perpetuity, and will make it easier for current and future scholars to identify the publication and to find articles. Similarly, the new numbering scheme of volumes and issues (with each volume corresponding to a year of publication) will make it easier to reference articles, and those references will now resemble references from other serials. This should help to attract additional article submissions by improving publishing in *Pedologie* as a resume/CV-building activity.

Additionally, this issue contains the first entries in two new recurring sections, Research Reports and Days Gone By. The Research Reports section highlights ongoing soil-related research in the region, and should attract student authors and others who are excited to reach the local soil science community. Days Gone By, a section suggested by Jenwei Tsai, will publish interesting captioned pictures that capture the fun and challenge of soil science as it has been done in days past. Keep an eye out for younger appearances of your friends and colleagues in this section, and please consider submitting some pictures of your own for a future issue.

Finally, the editors hope you enjoy the new organization in this issue, which puts a headline story and photo on the front page and moves some of the “boilerplate” to later pages.

Editor Fanning would like to add the following comments. I am very pleased that Assistant Editor Wessel has come along to give *Pedologie* its new directions, several of which are mentioned above, as well as new appearance in terms of the order that different, and now new, sections/items are presented; with this issue a picture, this time of the UM 2019 National Champion soil judging team by the Pacific Ocean, on the first page and the list of MAPSS Officers that used to appear on the front page, now tucked away on a later page. Thanks Barret for your many contributions and helping to make *Pedologie* more exciting to look at and read and for coming along to take over many of the editing responsibilities. I have been very slow to do professional things this spring in part because of some health issues. I have been checked out medically for some things in regard to my heart at the Washington Hospital Center and have recently undergone a procedure, not painful, to fix a blockage with a couple of stints in one section of my heart and I am undergoing continuing examinations that may lead to a fix up of my heart valve, although whether to go ahead with that has still not been decided upon. I have been able to continue with most activities, but at a slower pace than usual. Part of my slowdown is in reaction to the many medications that doctors have me on, some of which I am hopeful of getting off of as things move along. One of my disappointments has been not being able to get to my beloved birthplace Womb house in NNY yet this year, although I am hopeful of getting there for celebrating 70 years since my 1949 graduation from high school at the school's alumni banquet on June 29.

In regards to MAPSS, we are very fortunate to have Loretta Collings keeping up and improving our web site. As mentioned in the minutes of our annual meeting elsewhere in this issue, somehow the write-up about our first honorary member, Roy W. Simonson, got lost when we switched to a new format a few years ago, thus students who receive the Simonson scholarship that is presented annually could not go to the site to find information about who Roy was and things that he was known for, such as the generalized theory of soil genesis that is attributed to him. Fortunately, since the MAPSS meeting, Brian Needelman found the write-up about

Roy that used to be on the site, which I could not find although I wrote it, and it was slightly updated and Loretta has it back up on the web site along with other old time honorary members. However in looking at the honorary members section, one now finds that some of our more recently recognized honorary members, such as Carl Robinette and Diane Shields and now new honorary member Phil Snow are not even noted on the web site. That needs to be corrected, so MAPSS needs members or other volunteers to come forward to do the write-ups on them and submit such to Loretta for putting on the web site. I am willing to work on these things, but others who are familiar with Carl, Diane, and Phil are invited to come forward – they should not have to write their own blurbs, although they should have a chance to approve what is written about them and call attention to possible additional things that should be added to what is said about them.

Another item of news, Jim Brewer, long term member of MAPSS and secretary of the organization throughout much of its history, if not all of it, retired from USDA NRCS at the beginning of this year. He was missed at the MAPSS meeting this year, with fortunately the secretarial duties now being well-handled by Jenwai Tsai. I nominate Jim Brewer to be elected Honorary Member at the next MAPSS meeting at which this can be done.

Calendar of some coming events

- July 24, 2019. MAPSS Hops and Brewery Tour at WMREC and Flying Dog Brewery. More details to be announced soon.
- Nov. 10-13, 2019. Soil Science Society of America Annual Meeting in San Antonio, Texas. www.acsmeetings.org
- Nov. 15-20, 2020. 9th International Acid Sulfate Soils Conference, University of Adelaide, Adelaide, Australia. Note that this will be in late spring in Australia, a good time to get away from late fall and oncoming winter in the northern hemisphere. <https://biological.adelaide.edu.au/acid-sulfate-soil/iassc/>

UMD course announcement, fall 2019 semester

ENST761: Advanced Methods in Pedological Investigations, taught by Martin Rabenhorst

This course is designed to equip students with analytical tools for soil microfabric and mineralogical analysis in order to understand soil properties and processes. A number of techniques will be discussed, but emphasis will be placed on micromorphology and x-ray diffractometry. Both theoretical and applied considerations will be covered, and students will gain substantial hands on experience in collecting and interpreting data germane to their research interests.

Future articles etc. *Pedologue* needs articles, pictures, poems, cartoons, letters to the editor or other things soil scientists and/or other readers may be inspired to submit. Please submit such items to the editors (preferably DelvinDel@aol.com , alternatively dsf@umd.edu, and bwessel@umd.edu). Be an author, support your newsletter! It's a way to promote your work, our community, and things we all need to know about soils and the environment.

<p><u>2018 MAPSS Officers</u> President Annie Rossi Past President Bruce Bagley President Elect Susan Lamb Vice President Ben Marshall Treasurer Sarah Roberts Secretary Jenwai Tsai Member at Large to serve 2 years Bill Effland Member at Large to serve 1 year Josh Stallings Ex officio Member Phil King</p>	<p><u>Board of Directors</u> Barry Glotfelty to serve 1 year Jim Chaconas to serve 2 years John Wah to serve 3 years <u>Chairs of Standing Committees</u> Finance Vacant Constitution and By-Laws Gary Jellick Membership and Ethics Susan Lamb Nominations David Verdone Education and Public Relations Delvin Fanning Certification Vacant</p>
--	--

April 19, 2019 – Univ. of MD Terrapin Soil Judgers Win National Championship

Martin Rabenhorst

On April 18 and 19, the University of Maryland Terrapins captured first place in the 58th National Soils Competition hosted by the California Polytechnic and State University and held in the vicinity of San Luis Obispo, CA, where twenty six universities from seven regions around the country were competing for the prize. Although the Terps struggled in the group portion of the competition on Friday, their strength in the individual portion of the contest on Thursday, with the two UMD contestants finishing in the top 10 (among a field of 101) (Aubrey Wiechecki in 5th place and Cathelyn Wang in 7th place), carried them to the 1st place finish overall, ahead of Virginia Tech (2nd), Univ. of Nebraska (3rd, coached by former Terp Soil Judger Dr. Judy Turk), North Carolina State Univ. (4th) and Kansas State Univ. (5th).

The practice and contest pits included an interesting collection of soils that were mostly Mollisols, Vertisols and Aridisols. These were formed in variety parent materials including alluvium (on fans, terraces and floodplains), colluvium, and residuum. Other schools representing the NE region at the contest in California included Penn State Univ. (8th), Rhode Island (13th), and Delaware Valley University (15th).



The “oreo” pit, a mollisol with colluvium over residuum, and carbonate concentrations in the lower part.



Alluvial fan deposits containing imbricated gravels over Cr horizons in a dissected landscape.

This is the 5th time Maryland has won the national title over the 58 year history of the event. Coach Martin Rabenhorst was a member of the 1972 National Championship team that won in Blacksburg, VA and was coach of the 1984 team that won in San Luis Obispo, CA and of the 2017 team that won in Dekalb, Illinois. Assoc. Professor Brian Needelman coached the team that won the championship held in Platteville, WI in 2013. Three members of the Terp SJ team will be graduating this May (Frye, Lowien, and Wiechecki –Heisey graduated in December, but was still qualified to participate in the SLO event). The others (Bruno, Mast, Moy, Pei, Vega, and Wang) will hopefully be back on the team this coming Fall for the NE regional contest that will be hosted by UMD. In the meantime, they will be enjoying this victory.

Research Reports

When it comes to nitrogen leaching, not all cover crop practices are the same

Ian Goralczyk, Nathan Sedghi*, and Ray Weil

*Corresponding author, email nsedghi@umd.edu

Cover crops are subsidized for use on some 600,000 acres of agricultural fields in Maryland as part of an initiative to protect water quality and the Chesapeake Bay. As cover crops grow and take up nutrients, the water leaching from fields is cleaned up, especially with regard to nitrogen. However, the way that cover crops are typically managed may not be optimal for improving water quality. Our lab's previous work has shown that the effectiveness of cover crops in reducing N leaching during the winter is dramatically affected by how early the cover crops are established, with cover crops planted in October having little impact on N leaching compared to those planted a month earlier. The challenge is to find ways of getting cover crops established in early September, a time frame usually not possible with the typical practice of drilling cover crop seed after harvesting the corn or soybean cash crop. For this reason we studied a mixed species cover crop (radish, rye, and clover) that was inter-seeded into standing soybean canopies on two dates as compared to the standard practice of post-harvest drilling, and a no-cover control. We conducted the replicated experiment on two coastal plain fields with soils of contrasting textures formed in silty and clayey sediments, and in sandy sediments.

This experiment was established at the Beltsville Facility of the Central Maryland Research and Education Center, with funding from Shore Rivers and the Maryland Soybean Board. The early planted cover was planted on September 11, 2017. In each field, lysimeters were installed to one-meter depth and samples were collected using an 85 kPa vacuum (Figure 1) approximately every two weeks between December 17, 2017 and May 7, 2018. Soil pore water samples were filtered to remove particulate matter and frozen until they were analyzed for $\text{NO}_3\text{-N}$ and $\text{NH}_3\text{-N}$ on a LaChat Flow Injection Analyzer.

One field had a silt loam surface texture and it was mapped on Web Soil Survey as 45% Christiana Downer-Complex and 55% Russet-Christiana Complex. The other field had a loamy sand surface texture and it was mapped on Web Soil Survey as 95% Evesboro-Downer Complex and 5% Russet-Christiana Complex. By utilizing fields of contrasting soil textural classes we can determine the effectiveness of these cover cropping methods with a range of soil conditions in order to broaden the scope of this study.

Cover crop use made a huge difference in nitrate concentrations measured in the porewater collected at 1 m depth (Figure 2). For the silt loam field, inter-seeding a cover crop reduced nitrate concentrations in the leaching water (1.35 ± 0.40 ppm N, $n = 33$) more than drilling the cover crop after soybean harvest (3.76 ± 0.67 ppm N, $n = 32$), and substantially more than the no cover treatments (5.55 ± 0.81 , $n = 34$). The nitrate concentration in the deep porewater from the loamy sand was consistently higher than from the silt loam, but



Figure 1: Ian Goralczyk, an undergraduate researcher in Dr. Ray Weil's Soil Quality Laboratory, is shown installing a suction lysimeter for collecting soil porewater samples.

the cover cropping methods had similar relative effects in both soils. The inter-seeded cover crop reduced nitrate concentrations (1.73 ± 0.44 ppm N, $n = 37$) more than the post-harvest drilled cover crop treatment (5.40 ± 1.09 ppm N, $n = 35$), which had lower nitrate concentrations than the no-cover control treatment (9.93 ± 1.17 ppm N, $n = 36$) on the loamy sand field. While there were some samples above the EPA safe drinking water standard for nitrate-N (10.0 ppm), the average of all individual treatments were below this standard, and it was consistently lower for the earliest inter-seeded cover crop treatment. A major reason why lower nitrate concentrations at one m depth were observed for cover cropped plots is that the nitrate was taken up by cover crop roots and largely translocated to the aboveground plant tissue. This process captures the N before it leaves the potential rooting zone and recycles it to the surface horizon where it may be conserved for use by future crops. This could lead to decreased need for fertilizer nitrogen application to the following corn crop. Our data suggest that if similar cover crop inter-seeding practices (using aerial or ground-based methods) were applied on large scale commercial farms, the reduction in nitrogen loading to the Chesapeake Bay could be substantial. We can also conclude that early-planted cover crops are effective for reducing nitrate leaching on soils with a range of textural classes.

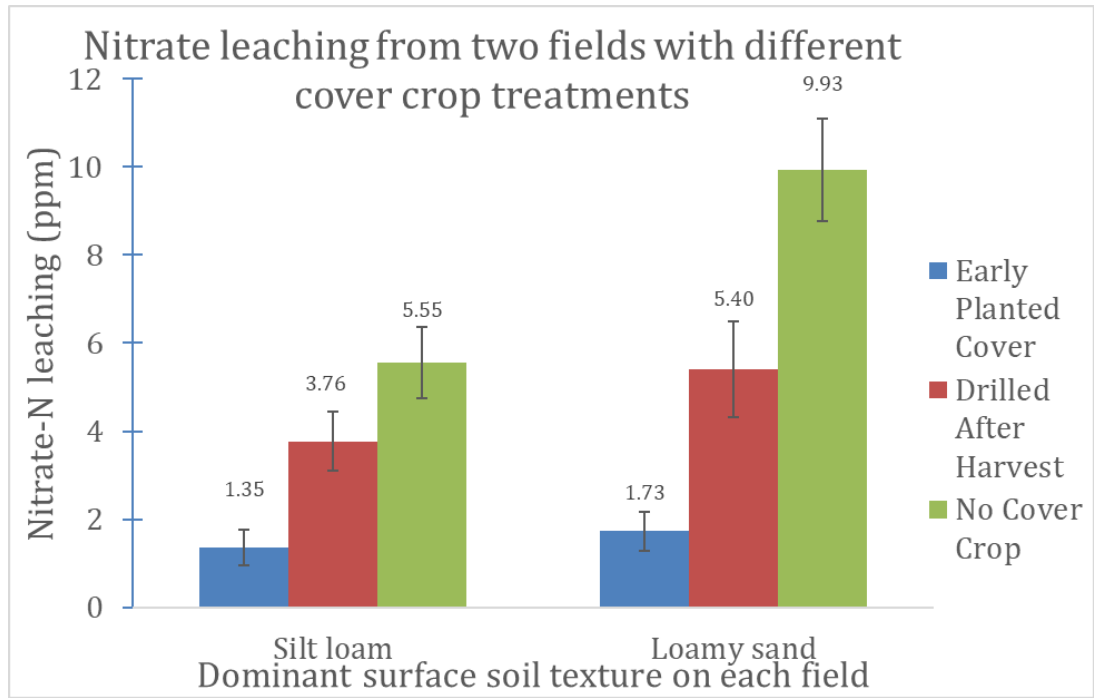


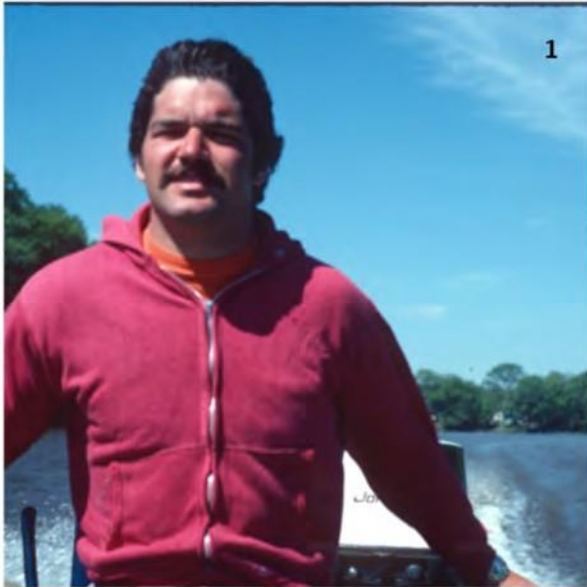
Figure 2: Average of lysimeter samples for all sample dates during the 2017-18 field season. Error bars are one standard error.

While these results are promising, it is important to note that these data represent only one year out of a three year project, and that more data will be collected on different field types and with different cover cropping methods. We hope to provide farmers with guidance on optimizing cover crop species mixtures and planting dates and methods in order to enhance the impact of cover crops on reducing nitrogen pollution.

Days Gone By...

Contributed by Robert Darmody, Emeritus Prof., U of Illinois, who got B.S., M.S. and Ph.D. degrees at University of Maryland, College Park in the 20th century, with help with this article from Jenwai Tsai

Bob is currently processing and scanning all of his slides into electronic format. He has found some photos of current MAPSS members from the 1970s and thought to share them.



- 1) Jim Brewer driving the boat in the search for Tidal Marsh soils for the Kent Co. Survey, summer of 1978. This is the fun part of the survey, tooling around in a boat on a nice day.
- 2) and 3) Jim penciling in the lines delineating the marsh soils from the upland soils.
- 4) Jim trying to figure out how to get back to deep water after grounding his boat.



5) Phil Snow, 1978.

6) Carl E. Robinette at his desk in Dr. Foss's Soil Survey Research Lab in H.J. Patterson Hall, UMD, 1978.

MAPSS Membership/Business Meeting -- 2/27/19, American Legion Hall, Crownsville, Maryland

By MAPSS Secretary Jenwei Tsai, photos courtesy of Del Fanning

Current President Bagley presided over the meeting; Attendance: 47 current members, new members, UMD students, and guests

Minutes from the 3/8/18 business meeting. No corrections, approved

Minutes from the 2/7/19 Exec. Council meeting. No corrections, approved

Treasurer's report for 2018 Budget Summary. No corrections, approved

Nominations for Executive Council – Past President Verdone put together a slate of nominations. Verdone asked for nominations from the floor. Nominations were closed, voted on, and approved as an election.

Results of the election were:

Vice President – Ben Marshall

Treasurer (1 yr): Sarah Roberts

At Large Member, 2 year term – Bill Effland

Board of Directors, 3 year term – John Wah

Members already holding office for 2019 were/are:

President: Annie Rossi

Past President: Bruce Bagley

President Elect: Susan Lamb

Secretary: Jenwei Tsai (1yr)

Member at Large (1yr): Josh Stallings

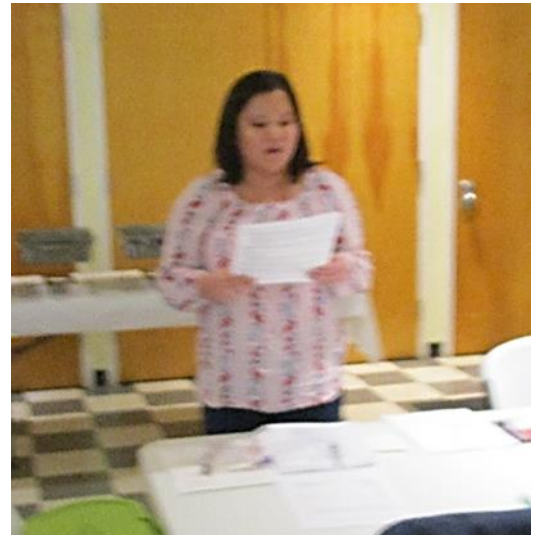
Ex officio Member: Phil King-(NRCS State Soil Scientist)

Board of Directors:

John Wah – to serve 3 years, reelected to be back on Board after going off Board after one year term at this meeting.

Jim Chaconas - to serve 2 years

Barry Glotfelty – to serve 1 years



Secretary Jenwai Tsai reading minutes

President Bagley called for **COMMITTEE REPORTS**

Membership and Ethics – President Elect Rossi informed the membership of new MAPSS members for 2019: Matt King, Philip Schwartz, and David Ruppert.

Education and Public Relations -Chairperson **Dr. Fanning** stated he is contributing for MAPSS to a survey of different professional soil scientist organizations around the country. Current MAPSS membership is 60. Fanning introduced **Barret Wessel** as the new and great assistant editor for the *Pedologue*. Barret has registered *Pedologue* with the Library of Congress and informed the membership that this year is volume 30 and *Pedologue* goes back to 1987. Marty said that he has all of the volumes. Fanning informed the membership that last year's Roy Simonson Scholarship winner had asked for information about Dr. Roy Simonson for whom the Scholarship is named. Fanning asked the membership to contribute on putting information together. Loretta said that she would put the information on the website once she has it. Fanning also asked to complete other honorary members' bios.

UMD Update - **Dr. Rabenhorst** discussed 2018 accomplishment of the UMD Soil Judging Team and introduced team members who were present (Dyani Frye, Rachel Heisey, Anna Lowien, Jonathan Moy, Evan

Park, Philip Schwartz, Antonio Vega, Cathy Wang, and Aubrey Wiechecki), He thanked MAPSS and its members for their continued contributions to support the team. The Team won the NE regional in Ohio in October, 2018 and is going to Cal-Poly San Luis Obispo for nationals in Spring 2019. The team is currently meeting on Friday mornings at 8am to learn about Mollisols and Vertisols and 10 students plan on attending the nationals.



Coach Martin Rabenhorst introduces some members of his team that won Fall 2018 NE Regional Soil Judging contest in Ohio in October, 2018, and went on to win 2019 National Contest in California in April, 2019.

Dr. Needleman discussed that soil judging is flourishing internationally. He has received a Fulbright Scholarship to go to Israel with Maxine Levin.

UMD is hosting the NE regional contest this year. More information will follow.

Dr. Rabenhorst presented the MAPSS Roy W. Simonson Scholarship award (\$1000) to UMD student **Cathy Wang**. **Cathy** is in her middle of second year and is working in Marty's lab on subaqueous soils. She had worked out in CA for the NRCS. She placed 6th in the regional and is double majoring in flute performance and soils.

Social Media Activities Recap for 2018- **Ben Marshall** recounted that the Facebook group/page was started in 2018. There are 90 members so far including professor from Africa! **Sara Mack** and Ben are the managers. Ben has been trying to post articles and photos on the account. Anyone is welcomed to post.

Pedologue Updates - **Barret Wessel** has been working on getting the articles for publication and also better recognition for the publication itself. *Pedologue* has switched to a volume system. Old issues are now online

(archives and current issues) on the MAPSS website. The ISSN number applied has been approved and the registered name of *Pedologue* is the official name in the registry. Library of Congress has the 1st issue and most current issues. Barret is thinking about going to quarterly publications having on-going columns of student research and old photos. He will be sending out emails for materials and for events with deadlines and etc.

Upcoming 2019 Events - **Annie Rossi** stated that UMD is hosting the regional soil judging competition and will need help from our members! Rossi also is currently setting up a 1 day Hops and Barley workshop this summer. More information will be sent out via email. Another 1-day field day on soil health has also been proposed. **Gary Jellick** asked for Southern MD sanitarian training help; training from MAPSS or what will be MAPSS' role in these trainings (instructors or are we designing the training from begin to end). Lots of new hires would benefit from workshops and field days. It was brought up that MD uses different methodologies of infiltration tests for onsite evaluation than DE. The fall field day generated lots of questions and feedback. Annie will follow up. Susan asked maybe we can repeat the fall field day. Gary and Annie will talk about Southern MD sites for field day. It was brought up that Delaware Tech has an onsite training center and MD Ext also. Questions were asked about if soil pits will be available at the hops event and maybe we can add the sanitarian to the invites lists.

Honorary Membership for Dr. Phil Snow - Bruce Bagley Membership Voted yes via applause

NOTE: meeting was followed by a brief update from Phil King and presentation by: Carl Koch - "Soil Health at USDA-NRCS"

Dr. Phil Snow, pictured elsewhere in this issue, delivers some wise comments after his election as a new MAPSS Honorary Member. In addition to his service to the soils community, Dr. Snow is a veteran of the Vietnam War.



Dr. Rabenhorst presents MAPSS Simonson Scholarship for coming year to UM student Cathy Wang

