

Message from the Chair

Dear Mechanics Division Members,

Greetings on behalf of the ASEE Mechanics Division Officers to all the proud members of the ASEE Mechanics Division. There are many divisions in ASEE, and I am confident that most of them are great, but I do not believe that there is a division as outstanding as the Mechanics Division. Our members are smart, talented, gifted educators, kind, generous, good-looking, and above average in every way (a veritable academic version of Lake Wobegon). Some people might think that since we are such an amazing division, it would be very hard to become a member. I certainly understand this sentiment, but I can assure you that it is not true. Everybody is welcome! Does joining the Mechanics Division give you the qualities listed above or are people with those qualities naturally attracted to our division? I can honestly say, "I don't know." I do know, however, that it is our responsibility as members to make sure everybody is welcome and to invite others to join our mechanics family, so please encourage your mechanics colleagues to become members of ASEE and the Mechanics Division.

JOIN US IN BALTIMORE June 25-28, 2023

Next year's ASEE Annual Conference & Exposition will be held in the Baltimore Convention Center, MD. More information on the conference is available at: <https://www.asee.org/events/Conferences-and-Meetings/2023-Annual-Conference>

Last summer's ASEE Conference was great! In spite of the difficulties associated with the paper management system Slayte (which in my humble opinion stands for "Spectacularly Large Aggravation Yielding Total Exasperation"), the papers were outstanding, the sessions were well attended, and the Awards Banquet's speaker, fellowship, and food were great. It was a genuine pleasure to see mechanics colleagues face-to-face again! Thanks to everyone who helped make it a success. We had excellent attendance at the business meeting. If you have not attended a business meeting, please do so next year because it is a great way to become involved in the division.

I hope that you are excited about next summer's conference in Baltimore, MD, from June 25th – 28th. You should have already received an email about the call for papers, so please **submit an abstract** and encourage others to do so as well. Also, please begin to **prepare nominations for the Mechanics Division awards**. A call for awards is included in this newsletter.

Thank you to all those serving our division (a complete listing is shown in this newsletter). I know serving can be a lot of extra and unexpected work, but be assured that it is greatly appreciated. I would especially like to thank Masoud, Jul, and Geoff for all of their help and support in planning last year's conference. Geoff Recktenwald, (gdr@egr.msu.edu) is this year's Program Chair, and he is doing a great job. Remember to contact Geoff if you are interested in participating in the "Hands-On Mechanics" session.

If you have any comments, questions, or suggestions about the Mechanics Division, please do not hesitate to contact me (phil.cornwell@afacademy.af.edu). Have a great semester.

Phil Cornwell, Mechanics Division Chair (2022-2023)

Mechanics Division News and Announcements

Call for Participation

Join Mechanics Community of Practice and Action Research Scholars Program – Stipends Available

Contributed by Brian Self

We are continuing our Community of Practice (CoP) focused on concept-based pedagogical practices. Join a group of like-minded professors who use concept questions and other evidence-based practices to promote student learning in mechanics. We'll be using the Concept Warehouse (CW) as a means to deploy the questions, and if you try out the CW and participate in an interview about your experiences there is a \$200 stipend available. It is a great venue to share teaching practices with others and find out great work being done in the mechanics community.

If you have some experience using the CW already, you can join our Action Research Scholars (ARS) program. Here, you can work with seasoned educational researchers to develop ways to evaluate your usage of the CW. We can help you develop strong research questions and develop publications for ASEE conferences and other venues. After completion and participation in an interview you can receive a \$500 stipend.

Facilitators for the CoP and ARS include long-time Mechanics Division members Chris Papadopoulos and Brian Self, ASEE Fellows Milo Koretsky and Mike Prince, Learning Scientist Susan Nolen, and Two-Year Division Chair Dom Dal Bello. Please email Brian Self at (bself@calpoly.edu) if you are interested.

New Book

Modern Applied Fracture Mechanics

Contributed by Cameron Coates

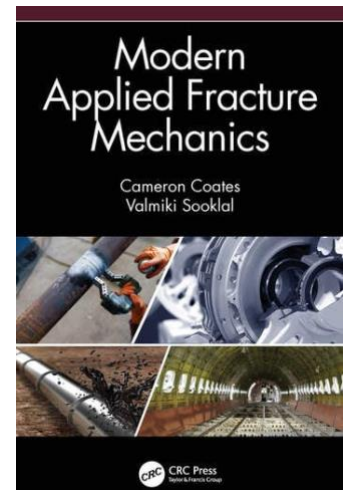
Cameron Coates and Valmiki Sooklal recently published a text in fracture mechanics for undergraduate students and practicing engineers with lack of exposure to the field through their undergraduate curriculum. Fracture mechanics is traditionally taught as a graduate course, but the authors believe all engineering students that may potentially work with structural aspects should be exposed to the basic applications of this field.

The book covers fundamental linear elastic fracture mechanics concepts and real-world applications. It includes numerous sample problems, software examples, and a solution manual for adopting instructors.

Modern Applied Fracture Mechanics was published August 2022 by CRC Press (ISBN 9781003052050).

Additional News Items

If you have any news items or announcements for the Spring 2023 newsletter, please send them to Jean Batista Abreu (batistaic@etown.edu) by April 7, 2023.



Job Opportunities

POSITION ANNOUNCEMENT: Assistant Professor of Instruction, Mechanical Engineering, University of South Florida

Contributed by Autar Kaw

The Department of Mechanical Engineering at the University of South Florida invites applications for a 12-month non-tenure track position at the Assistant Professor of Instruction level starting during the academic year 2023-24. Applicants in the areas of Mechanical Engineering discipline are encouraged to apply for this position. This position requires an earned doctoral degree in Mechanical Engineering or a closely related field. Some of the desired expertise include demonstrated teaching experience at the university level in Thermal systems and Heat transfer, Programming languages (MATLAB), Computational methods, Thermodynamics, Student design projects, and the Development of new undergraduate Mechanical Engineering Laboratory experiments. Preference will be given to candidates interested in teaching students from all backgrounds.

A review of applicants will begin immediately, and applications will be accepted until the position is filled. For more details and to apply for the job, please visit https://gems.usf.edu:4440/psc/gemspro-tam/EMPLOYEE/HRMS/c/HRS_HRAM_FL.HRS.CG_SEARCH_FL.GBL?Page=HRS_APP_JBPST_FL&Action=U&FOCUS=Applicant&SiteId=1&JobOpeningId=30987&PostingSeq=1&.

POSITION ANNOUNCEMENT: Open Rank Tenure-Track Faculty Positions - Mechanical & Aerospace Engineering, NC State

Contributed by Anna Howard

The Department of Mechanical and Aerospace Engineering at NC State University is now hiring multiple open-rank faculty members in both Mechanical and Aerospace Engineering fields, along with Professional Track Teaching faculty.

- Mechanical Engineering Faculty

Applicants with research expertise in the following fields are especially encouraged:

- Biofluid mechanics and computational fluid dynamics
- Renewable energy, energy storage, and sustainability
- Robotics and Control
- Engineering applications of data analytics and machine learning

Visit <https://jobs.ncsu.edu/postings/171488> to learn more.

- Aerospace Engineering Faculty

Applicants with research expertise in the following fields are especially encouraged:

- Systems Design
- Hypersonics
- Multifunctional Materials/Structures
- Propulsion

Visit <https://jobs.ncsu.edu/postings/171856> to learn more.

- Teaching Faculty

Strong applicants will have experience in teaching large class sizes and interest in research-based pedagogical techniques. The position will allow for promotion but not tenure. Ongoing educational research will be encouraged. Applicants who are able to teach Controls and Mechanics are especially encouraged. Visit <https://jobs.ncsu.edu/postings/171436> to learn more.

POSITION ANNOUNCEMENT: Cluster-hire Faculty Search for Energy Systems and Mechanical Engineering, HSI Cal Poly Humboldt
Contributed by Elizabeth A. Eschenbach

We are pleased to announce we are searching for four new faculty to join the Engineering Department at Cal Poly Humboldt. Our currently open cluster hire is targeting applicants with focus areas in Energy Systems Engineering and Mechanical Engineering.

Our first review of applications will be on November 1, 2022. <https://careers.humboldt.edu/hm/en-us/job/519384/tenure-track-faculty-school-of-engineering-cluster-hire-group>.

This is an exciting time for our University, which has just this year transitioned to a "polytechnic" institution. This designation recognizes the hands-on and applied education we have offered students for decades, and has come with a mandate to develop new programs that provide more opportunities for this kind of learning. In response our department is developing several new Engineering programs with an eye towards 21st century societal needs and interdisciplinary, inclusive approaches to education and scholarship. The new programs, which launch in Fall 2023, include Energy Systems Engineering (B.S.), Mechanical Engineering (B.S.), and Engineering and Community Practice (M.Eng).

The people who join our faculty through these cluster hires will have the opportunity to help shape the future of Engineering programs at Cal Poly Humboldt. This search is open-rank. We welcome and encourage applications from freshly finished PhD folks through seasoned faculty with years of experience.

Does this opportunity to help build new engineering programs, serve diverse students, and focus on societal needs match your career goals? We are hoping to see your application and look forward to meeting you.

POSITION ANNOUNCEMENT: Tenure Track Faculty in Mechanical Engineering, Rose-Hulman
Contributed by Amir H. Danesh-Yazdi

The Mechanical Engineering Department at Rose-Hulman is searching for inspiring educators who share our passion for teaching undergraduate engineering students. Our mission is "to provide students with the world's best undergraduate science, engineering, and mathematics education in an environment of individual attention and support." If this resonates with you, then we think you'll love what we have to offer.

We are currently seeking outstanding engineering educators in any area of Mechanical Engineering. Candidates who are interested in teaching courses in one or more of the following areas are preferred:

- Material science and manufacturing
- Dynamic systems and control

We welcome applications for tenure-track positions at the Assistant Professor rank to begin fall 2023. Highly qualified candidates may be considered for positions at higher rank commensurate with experience and qualifications. Requirements include a doctorate degree (by the start of employment) and a baccalaureate degree in mechanical engineering or a closely related field. Essential job functions include teaching and advising students; service to the department, Institute, and professional communities; and professional development.

For more information about the positions and application requirements, please visit <https://jobs.rose-hulman.edu/>.

Call for Award Nominations (Submit by January 23, 2023)

Archie Higdon Distinguished Educator Award

The Archie Higdon Distinguished Educator Award is given annually by the Mechanics Division for distinguished and outstanding contributions to engineering mechanics education. The nomination package should include the following:

1. A letter of nomination and no more than four accompanying letters of support which delineate the nominee's contribution to mechanics education,
2. Nominee's curriculum vitae.

The award consists of a plaque to be given during the ASEE Annual Conference at the Mechanics Division Awards Banquet, a \$750 cash prize, and registration for the Mechanics Division Banquet for the awardee and a guest.

Ferdinand P. Beer and E. Russell Johnston, Jr., Outstanding New Mechanics Educator Award

The Ferdinand P. Beer and E. Russell Johnston, Jr., Outstanding New Mechanics Educator Award is given annually to up to two individuals (contingent to availability of funds) who have shown a strong commitment to mechanics education. The winners are selected on the basis of their exceptional contributions to mechanics education. Individuals who have no more than five years of academic experience past their first regular academic appointment are eligible. The nomination package should include the following:

1. A letter of nomination which delineates the nominee's contribution to mechanics education and no more than two additional letters of support,
2. A one-page letter from the nominee describing his or her personal philosophy regarding mechanics education,
3. Nominee's curriculum vitae.

The award consists of a plaque to be given during the ASEE Annual Conference at the Mechanics Division Awards Banquet, a \$750 cash prize, and registration for the Mechanics Division Banquet at the 2023 Annual Conference for the awardee and a guest.

Mechanics Division James L. Meriam Service Award

The Mechanics Division James L. Meriam Service Award may be given annually to recognize significant service to the Mechanics Division as characterized by notable leadership, significant contributions, and prolonged and dedicated service. Candidates for the award must be members of the Mechanics Division and must have served the Division for a minimum of ten years. No individual may receive the award more than once, and members of the Division's Awards Committee are not eligible for the award until two years after completing their service on that committee. Nominations may be made by all members of the Mechanics Division except for those members serving on the Division's Awards Committee. Each nomination package must include the following:

1. A chronological listing of the candidate's service to the Division,
2. A narrative statement detailing the significant elements of the service.

The award consists of a plaque to be given during the ASEE Annual Conference at the Mechanics Division Awards Banquet, and registration for the Mechanics Division Banquet for the awardee and a guest.

Attendance at the ASEE Annual Conference is required for the awardees. Nominations are due by **January 23, 2023**. To submit nominations (or to arrange by mail) or for additional information please contact the Awards Committee Chair Christine Masters at cbm100@psu.edu.

2022 ASEE Mechanics Division Annual Business Meeting Minutes (DRAFT)

Note: A final version will be approved at the 2023 Mechanics Division Business Meeting. Please forward any needed corrections via email to batistajc@etown.edu.

Meeting Time: Wednesday, June 29, 2022, 11:30 am – 1:00 pm CDT

Location: M100C, Convention center, Minneapolis, MN

Attendees: Anna Howard, Carmen Muller-Karger, Christopher Papadopoulos, Geoff Recktenwald, John Baker, Jennifer Kadlowec, Jul Davis, Masoud Rais-Rohani, Matthew Jensen, Nicolas Libre, Phil Cornwell, Shelly Lorimer, Sahithya Reddivari, (other attendees listed on the signup sheet)

Call to Order – 11:35 am CDT

1. Welcome/Introductions (Jul Davis – chair)
2. Motion to approve 2022 business meeting minutes – minutes were approved unanimously (Motion: Anna Howard, Second: Phil Cornwell)
3. Conference Updates (Phil Cornwell – program chair)
 - 56 abstracts submitted (plus 13 from last year)
 - 39 final papers, the rest were rejected to withdrawn
 - 8 technical sessions, 2 special session, 1 join session with Mechanical Engineering division
 - The challenges of the new paper management system were discussed by the division chairs and members
4. Report from Division Officers
 - a. Treasurer's Report (Jacob Moore)
 - o Most up to date balance in BASS account: \$6,959.66 (as of 11/09/2022).
 - o Finances are decently normal
 - o Increase the ASEE membership by \$3 every year for five years, the BASS account fee will be dropped starting this year.
 - o Two awards were given this year, each \$750
 - o The \$1000 donation was spent for awards, plaque, and banquet fee for awardees
 - b. Nominating committee (Chair: Carisa Ramming): No updates to report
 - c. Awards committee (Amir Danesh-Yazdi on behalf of chair Christine Masters):
 - There was a shortage of nominations again this year. The committee requested the division members to share the award opportunities with their colleague and to be on the lookout for potential awardees
 - The in-person award banquet was well attended.
 - d. Membership committee (Geoff Recktenwald on behalf of chair Jennifer Kadlowec): No updates to report. The division members discussed the following topics:
 - Committee plan for attracting more people and increase visibility and engagement.
 - Efficient ways of spending membership money. The idea of waiving the membership fee for new members was discussed
 - e. Secretary (Nick Libre): Fall newsletter published in November 2021, the Spring newsletter published a few weeks before the ASEE annual conference in June 2022
5. Updates from PIC V chair (Peter Golding)
 - a. 2022 conf updates:
 - i. 3042 attendees
 - ii. 762 session papers

- iii. 1365 unique authors
- b. ASEE recognizes the difficulties associated with the new paper management system (SLAYTE) and seek forward inputs to improve user engagement
- c. ASEE will form a new user group to review all future software purchases
- d. The ASEE Ethics committee resolved one case of aggressive meeting conduct
- e. ASEE participants will receive a \$50 discount for 2023 due or the next conference registration
- f. 25 papers nominated for best diversity, equity, and inclusion paper
- g. The bass account fee is dropped starting this year
- h. Recommendation to the division:
 - i. Consider adding plans to the division bylaw in order to define what happens if an officer cannot complete their term
 - ii. Seek for diversifying the leadership opportunities and increasing members engagement
- i. Questions and Discussion:
 - i. Jul Davis asked if it possible to waive the membership charge for new members while keeping it for old members. Peter didn't know the answer at the moment but he will find the answer and will share with the division.

6. Elections

- Program Chair Elect for 2024
 - o Chris Venters (uncontested, winner by acclamation)
- Director (2 vacancies – 4-year terms until 2026)
 - o Five nominations: Amir Danesh-Yazdi, James Lord, Jean Batista Abreu, and Nicolas Libre
 - o Nicolas Libre and Amir Danesh-Yazdi were elected
- Treasurer
 - o Sahithya Reddivari (uncontested, winner by acclamation)
- Secretary
 - o Jean Batista Abreu (uncontested, winner by acclamation)
- Webmaster
 - o Devin Berg will continue
- Nominating
 - o Added James Lord, Devin Berg rolled off
- James Lord, Jennifer Kadlowec, Matthew Jensen, and Shelly Lorimer were appointed to the membership committee
- Chairs of committees were not present, Masoud will contact them by email to see if they would continue
- Diversity Delegates
 - o Christopher Papadopoulos (Ethics)
 - o Carmen Muller-Karger (DE, 2022-2024I)

7. Leadership transition

Adjourn at 1:22 pm CDT

2022 Mechanics Division Awards

The Mechanics Division Annual Awards Banquet was held on June 28, 2022 in Minneapolis, MN. The Mechanics Division award winners are summarized below:

Ferdinand Beer and E. Russell Johnston, Outstanding New Mechanics Educator Award

Brad Davis, United States Military Academy
Todd Nelson, University of Southern Indiana

Archie Higdon Distinguished Educator Award

Carisa Ramming, Oklahoma State University

Mechanics Division James L. Meriam Service Award

Not awarded this year

Mechanics Division 2022 Best Paper Award

Improving Understanding of Reaction Forces in Free Body Diagrams using a Paired Vector Object in Prairie Learn
Hadas Ritz, Sanjit Basker, and Jingjie Yeo, Cornell University

Mechanics Division 2021 Best Presentation Award

Hands On Learning in a Remote Introduction to Statics Classroom Environment
Sarah Wodin-Schwartz, Kimberly LeChasseur and Caitlin Keller of Worcester Polytechnic Institute

Congratulations to the Mechanics Division award winners! What a wonderful list of awardees! Keep it up everyone! Don't forget to nominate great educators for next year's Archie Higdon Distinguished Educator Award, Outstanding New Mechanics Educators Award, and the James L. Meriam Service Award.

2022-2023 Mechanics Division Officers and Standing Committees

Chair: Phillip Cornwell, US Air Force Academy (2018-22)
(719)333-4396, phil.cornwell@usafa.edu

Program Chair: Geoffrey Recktenwald
(517) 432-3658, GDR@egr.msu.edu

Program Chair Elect: Chris Venters, East Carolina University (2018-22)
(252) 737-1028, ventersc@ecu.edu

Past Chair: Julian Davis, University of Southern Indiana
(812) 461-5489, julian.ly.davis@usi.edu

Directors:

Anna Howard, North Carolina State University (2020-24)

(919) 513-4019, annahoward@annahoward.com

Jakob Bruhl, The United States Military Academy (2020-24)

(845) 938-3131, jakob.bruhl@westpoint.edu

Dan Baker, Colorado State University (2021-2025)

(970) 491-0261, dan.baker@colostate.edu

Andrew Sloboda, Bucknell University (2021-2025)

(570) 577-1861, andrew.sloboda@bucknell.edu

Nicolas Libre, Missouri University of Science and Technology (2022-26)

(573) 341-7069, libren@mst.edu

Amir Danesh-Yazdi, Rose-Hulman Institute of Technology (2022-26)

(812) 877-8305, daneshya@rose-hulman.edu

Secretary: Jean Batista Abreu, Elizabethtown College,
(717) 361-4770, batistajc@etown.edu

Treasurer: Sahithya Reddivari, Georgia State University - Perimeter College
(678) 891-3735, sreddivari@gsu.edu

Webmaster: Devin Berg, University of Wisconsin-Stout
(715) 232-1133, bergdev@uwstout.edu

Archivist: Devin Berg, University of Wisconsin-Stout
(715) 232-1133, bergdev@uwstout.edu

Nominating Committee: Carisa Ramming, Chair (carisa.ramming@okstate.edu), Vincent Prantil (prantil@msoe.edu), James Lord (ijklord@vt.edu)

Membership Committee: Jennifer Kadlowec, Chair (kadlowec@rowan.edu), Matthew Jensen (mjensen@fit.edu), Shelley Lorimer (lorimers@macewan.ca), James Lord (ijklord@vt.edu)

Awards Committee: Christine Masters, Chair (cbm100@psu.edu), Robert Efimba (refimba@howard.edu), Jennifer Holte (jholte@stthomas.edu), Hadas Ritz (hr32@cornell.edu), Sarah Wodin-Schwartz (swodinschwartz@wpi.edu)

Notes: Two Directors are elected at each annual Business Meeting for terms of four years. Directors who have served for at least one year are eligible to be elected as Program Chair Elect (and to serve consecutively as Program Chair and Chair). Secretary and Treasurer are ex-officio (non-voting) elected at each annual Business Meeting for terms of one year. Webmaster and Archivist are ex-officio (non-voting) and are elected for terms of one year. The Nominating Committee is specified to consist of the three most recent Past Chairs. The Membership and Awards Committee are appointed to serve for terms of one year.

New Officer Introduction

Jean Batista Abreu, Elizabethtown College - Secretary (2022 - 23)



Jean Batista Abreu, Ph.D., is an Assistant Professor in the Engineering Department at Elizabethtown College. Jean's research focuses on understanding the response of metal structures under extreme conditions, such as elevated temperatures due to fire. He uses experimental work and computational models to evaluate structures and subsequently develop analysis-based design recommendations and methods.

Jean typically teaches Statics, Mechanics of Materials and upper-level Civil Engineering courses. He received the Ferdinand P. Beer and E. Russell Johnston, Jr., Outstanding New Mechanics Educator Award given by the ASEE Mechanics Division in 2021.

Jean is originally from the Dominican Republic. He enjoys helping students make effective plans to achieve academic and professional goals.

James Lord, Virginia Tech – Awards and Membership Committees (2022 - 23)



James Lord, Ph.D., is an Assistant Professor in the Department of Biomedical Engineering and Mechanics at Virginia Tech. He also serves as Chair of the Engineering Science and Mechanics undergraduate program. He primarily teaches foundational engineering courses such as Statics and Mechanics of Deformable Bodies.

James' primary research interests center around andragogy and assessment of foundational mechanics principles, equitable assessment of faculty in teaching, and the effects of institutional policies on faculty and student learning. He also has a background in the design and operation of prosthetic joints, particularly metal-on-metal hip prostheses. His work on quantifying the mechanical wear of these devices is being used to identify

design flaws in modern under-performing medical devices implanted into hundreds of thousands of people worldwide.

Sahithya Reddivari, Georgia State University - Treasurer (2022 - 23)



Sahithya Reddivari received her Ph.D. in Environmental Engineering from the University of Michigan in 2016. Dr. Reddivari enjoys working on experiential learning projects and engaging with students outside of the classroom. Her passion led to the startup and running of the STEM Lab on the Clarkston campus. She currently advises the Clarkston Women in STEM.

Sahithya is currently working on a College to Career project to develop Portfolium based modules that will guide engineering students to recognize marketable skills that are developed through their course work. Further, students will be able to identify gaps in essential workplace skill sets and work towards bridging those gaps.

Mechanics Division - Opportunities for Involvement

All members and prospective members of the Mechanics Division are invited to the Mechanics Division Annual Business Meeting, held each year in June at the ASEE Annual Conference. One of the primary activities of the division business meeting is to elect new officers and fill available committee positions.

Some of the offices are described below. For a full list of positions, see “2022-23 Mechanics Division Officers and Standing Committees”, provided earlier in this newsletter.

Director: A director is a voting member of the Executive Committee. Main duties: attend the Executive and Business Meetings at the Annual Conference, elect the Program Chair Elect, and participate in decision making as issues arise. Directors must also be willing to accept a nomination for Program Chair Elect, which succeeds consecutively to Program Chair, Chair, and Immediate Past Chair. Term: 4 years.

Secretary: Main duties: Attend Executive and Business Meetings at the Annual Conference and record minutes; prepare ballots for elections of officers; prepare and distribute Newsletter (twice per year); assist Chair with ensuring that Division agenda is executed. Term: 1 year.

Treasurer: Main duties: Keep records of accounts; issue checks to award winners; pay and process other items as necessary. Term: 1 year.

Officer Nominations:

You are welcome to submit nominations before or during the 2023 Mechanics Division Annual Business Meeting. Self-nominations and/or multiple nominations are permitted. Nominations may be submitted via email in advance of the meeting to Phil Cornwell (phil.cornwell@afacademy.af.edu). Include a brief statement of the nominee’s current/past involvement in the Mechanics Division and nominee’s interest in serving in the specific office. If a person is being nominated for more than one position, please state preference.

2023 Annual Division Business Meeting Agenda Items:

If you have any items that you would like included on the agenda for the Annual Division Business Meeting, please contact Division Secretary, Jean Batista Abreu (batistajc@etown.edu) or Division Chair, Phil Cornwell (phil.cornwell@afacademy.af.edu), before the 2023 Annual Business Meeting.