

MACRO Report. Spring 2024

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Overview

We are developing a platform that supports 3 distinct areas. Curriculum, Professional Development, Outreach. We also post scientific resources available to researchers.

Key activities:

The website provides resources on all 3 areas. New content has been added to the website. See below. Additionally live events are being organized as part of MACRO.

Curriculum. We now have resources on the MACRO webpage on general polymer topics, acyl substitution, stereochemistry, alkene chemistry.

Recent activities

We have complete slide sets and instructor documents for:
Defining Polymer Molar Mass: M_N , M_w , and \bar{D}
Methods for Determining Polymer Molecular Weight
Introduction to Polymer Viscoelasticity and Rheology

Curriculum: New lecture content is planned for the next 12 months.

Immediate next steps:

Prepare the modules on molecular weights, evaluating molecular weights and rheology

Meet with Amanda Koenig at spring ACS conference to share information and consider collaboration between MACRO and the ACS Institute.

Longer-term next steps:

- Branching out into physical chemistry modules with Yoan Simon and Dan Savin.
- Synthesis modules for living polymerizations.

Professional development (PD). The goal of MACRO's PD activities is to provide resources (currently) and eventually materials to people interested in polymer science at various stages of their career. We have published resources on the MACRO website for undergraduates seeking further graduate study in polymers. We plan to expand these resources over the next 3-5 year to address all stages of career development including graduate students, industry and early career scientists.

Hosted 3 web panels in 2023. The response for all these panels were good and participation (specifically from the undergraduate audience, increased

Career Pathways for Graduate Students – 4/23

Professionals from diverse careers – FDA Polymer Scientist, Chemistry Patent Lawyer, Industry Research Scientist.

Navigating Graduate School – 8/23

Panel consisted of a current PhD Candidate, a recent graduate working in the industry and a graduate advisor.

Career Pathways for Undergraduate Students – 11/23

Panelists include a professor, student advisor and a recently enrolled PhD student.

Future Plans:

- Targeting a panel on professional growth outside of work for April 2024. Primarily focused on graduate students but can also include early career professionals.
- We have also received interest from additional volunteers for professional development activities.
- To increase our activities/audience, we should collaborate more with other groups such as YCC or young professional committees in other divisions.

Outreach. We have created a depository of outreach materials for individuals to be able to spread their passion and knowledge of science to the general population. MACRO just launched an interface where individuals can share what they are currently utilizing in their communities and receive appropriate recognition for their contributions to the Polymer community.

Providing funds to Sarah Morgan and Claire Clemons for an outreach activity at 2024 Spring ACS in New Orleans. Estimating to provide 50 kits to 50 teachers. Based on success of event, plan to create a “How to ...” document and video for this activity and post on MACRO site.

We are hosting a STEM outreach competition for the 2024 Spring ACS meeting. This is going to model what AIChE STEM outreach does (<https://www.aiche.org/k-12/community/awards/aiche-k-12-stem-outreach-competition>). We hope to engage committee members to develop clear descriptions of new outreach activities and expand the repository of listed polymer and general scientific demonstrations.

Plan to engage with USM and Cal Poly to create video content describing outreach activities and post to MACRO page. Both Universities have durable lending libraries that can be described and shared.