

## The 9<sup>th</sup> Annual Workshop of the Undergraduate Research in Mass Spectrometry Interest Group Report

ASMS 2019, June 2-6, Atlanta, GA

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### Workshop

The undergraduate research (UG) in mass spectrometry interest group serves two populations: undergraduate students and the faculty who mentor them. In past years, the workshop focused on the students. Panelists from diverse backgrounds shared their career trajectories and then answered questions from students in the audience. Since the “Meet the Experts Lunch” (see below for more detail) provides students will a career mentoring opportunity, we decided that the 2019 workshop should focus on faculty.

The workshop entitled, “Teaching MS at the Undergraduate Level” was held on Wednesday, June 5<sup>th</sup>. Approximately 48 attended. Names and email addresses were voluntarily collected from attendees who ranged from new to seasoned faculty, post-docs seeking faculty positions, research scientists in academia and lab managers at MS core facilities.

Chrisi started the workshop with a short PowerPoint presentation. The presentation

- summarized the history of the interest group
- described the UG programming that the interest group organizes
- announced ASMS awards available to PUI faculty and their students
- described NSF-supported curricular projects related to mass spectrometry
- shared and discussed resources available on the Analytical Sciences Digital Library (ASDL, <http://home.asdlib.org>) with focus on the MS activities in the active learning module
- Introduced the newly launched “ASMS UG Research in MS” Slack site:  
URL: [asmsugresearch-exx4211.slack.com](https://asmsugresearch-exx4211.slack.com)

Chrisi and Jay then opened the floor to discussion. Questions raised and discussed included:

- How to convince your colleagues that mass spectrometry should be an essential part of the curriculum?
- How to integrate mass spectrometry throughout the curriculum from freshman to senior year?
- To what extent do commonly used analytical textbooks cover mass spectrometry?
- How to acquire a MS-instrument on a limited budget? Are there mechanisms other than NSF MRI? What are typical upkeep costs for various types of instruments?
- When teaching proteomics, should I focus on top-down, bottom-up or both?

Twenty-one (~45%) workshop participants completed the ASMS survey. The results and feedback for this inaugural topic were very positive! A few comments from participants are provided below.

- “Everything I hoped it would be... An actual "DISCUSSION" between like-minded people. A chance to share ideas, ask questions, join an online forum. What more could you ask! I hope this group continues!”
- “I really enjoyed this workshop. I liked how it was a presentation of what is available for everyone and then how it transitioned into a question/answer where anyone could answer the questions to try and help their fellow colleagues.”

- “As a student looking to become a PUI professor this workshop was very helpful. It was great to hear what professors are thinking about and experiencing. Also, it was great that they set up a slack website that had the material covered in the discussions.”

As of July 17, 54 people have joined the Slack site. Channels on the site include active learning, laboratory materials, lecture materials, exams, MS instrumentation and ASMS. We hope that this site will foster the development of a community that grows and shares resources on how to best teach mass spectrometry at the undergraduate level.

The positive response to both the workshop and the Slack site indicates that a venue is needed to discuss MS-education. We anticipate that this interest group will continue to be that venue.

### **UG Programming Organized by the Interest Group**

In addition to the workshop, the interest group organizes three other events at ASMS.

1. “What to do and see at ASMS,” Sunday, June 2, 4:00-4:45 pm. Jay and Chrisi provided useful tips to first-time conference attendees on how to navigate ASMS and the online app. Jay also gave suggestions for things to do and see in Atlanta.
2. ASMS Undergraduate Poster Competition, Sunday, June 2, 7:45-9:00 pm. 37 students competed in three categories (instrumentation/ion sources, small molecules/metabolomics and proteomics). The winner in each category was announced at the ASMS business meeting. Each winner received \$300.
3. “Meet the Experts Lunch,” Monday, June 3, 11:30am-1 pm. Experts hosted tables and discussed career options with undergraduate students. Approximately 20 students attended. Experts included John Yates (Scripps), Erin Baker (NC State), Candice Ulmer (CDC), Gary Patti (Washington University), Rainey Garland (Eastman Chemical) and Christine Miller (Agilent).