

AIChE Environmental Division - Career Panel

Event Date: 05/11/2021

Panelists:

Dr. Matthew Alexander (MA)
Dr. Richard D. Siegel (RDS)
Dr. Selma Mededovic Thagard (SMT)
Dr. Gerardo Ruiz-Mercado (GR-M)

Moderator:

Dr. Kirti M. Yenkie (KMY)

AIChE Coordinators:

Derek Ward
Gina Gatto

Webinar Q&As

(Which were not answered online in the recording)

The current direction of the united states government on the environment seems to volatile at the moment. To what degree does governmental policy affect the stability of the career?

RDS: In the short term it can slow or speed up both regulatory development and enforcement. In the long haul, I have seen ongoing activity in spite of political turmoil over the years as new contaminants are identified and new technologies are developed.

How did you find your first jobs in this field?

RDS: I wanted to work in the Greater Boston area so I focused my search there. I found a small firm that was just beginning to address environmental issues as project opportunities. They had no chemical engineers on board and needed someone with that expertise. One of my first projects was developing a software program to determine how oxides of nitrogen were formed in a gas turbine combustor and how to limit their production. This was a perfect application of chemical engineering fundamentals

GRM: I learned about EPA opportunities by networking and meeting EPA employees who are current members of our AIChE Environmental Division.

What's the best way to begin applying to positions in the environmental sector as a chemical engineer?

RDS: In my experience it is all about networking. AIChE, your professors, recent graduates from our University are perfect places to start.

How should we emphasize our desire to be in that environmental sector through the job application?

RDS: Use your cover letter to express your interest.

Does your role involve a lot of traveling?

RDS: Absolutely. Meeting face to face with clients and prospects is the absolute best way to interact in the consulting world. Attending conferences is a way to build your contact network.

How did the pandemic change your typical day? And how did you cope with the changes?

RDS: I have an office that I rarely visit except during off hours to pick up mail, etc. I work remotely from home. Frankly, I hate it...ZOOM, e-mail, etc are not the best mode to interact with your clients and prospects.

SMT: It changed it significantly. My entire day is a “zoom day”. Interactions with friends, students and colleagues are all web-based. I miss talking to students and visiting my lab. I had to embrace the changes as they were but have maintained close connections to friends, family and students. Talking about how the pandemic changed our lives and how we were all affected by it helped me cope.

Are there any start-up suggestions from you guys that we could pull up from this field?

RDS: Be prepared for a fair amount of administrative work. For example, your accountant, grant administrator, etc. will need a lot of info. You'll be doing your own invoicing, procurement of supplies, etc. I was naïve when I started my business in the context of not estimating the level of effort running a business takes.

SMT: Yes, many. See this interesting list below. You will note that many startups are oriented towards the environment.

<https://welpmagazine.com/15-chemical-engineering-startups-positioned-to-make-it-big-in-20212/>

I am really interested in working in the EPA and I was wondering how Dr. Ruiz learned about opportunities at the EPA and how he got started?

GR-M: Thanks for your interest in working with us and protecting our environment and human health. I learned about EPA opportunities by networking and meeting a former EPA employee who is a current leader of our AIChE Environmental Division. I started as a Postdoctoral research fellow. A year after, a federal position was open, I applied and got the job. My recommendation is to look into research opportunities like internships for

students @ orise.orau.gov/epa/current-research-opportunities.html) and Recent Graduate/Pathways @ www.usajobs.gov opportunities and when inside do networking, learn their current needs and demonstrate that you're the best candidate they can find for it.

Any suggestion for a first year PhD student who wishes to join EPA after graduation?

GR-M: My recommendation is to apply and get a student research experience with the EPA. Some opportunities are summer internships for graduate students @ orise.orau.gov/epa/current-research-opportunities.html) and Recent Graduate/Pathways @ www.usajobs.gov opportunities, and when inside do networking, learn their current needs, working culture, and demonstrate that you're the best candidate they can find for it.

What are your recommendations to guarantee my job in future?

RDS: Simply said, there are no guarantees. I have been through numerous acquisitions and roles change and in some instances, some staff can be made redundant. You must always keep your eye on the market so that if you are impacted, you are not starting from scratch. Also, try to make yourself invaluable for example, develop skills or expertise that others do not have and be sure to develop a client following: firms hire the individuals that they know and trust, not the company they work for.

What are your tips for networking with people in environmental industries? Who should undergraduates reach out to?

KMY: Use professional societies such as the AIChE and its subdivisions for connecting with professionals in your area of interest. You have started already by joining the AIChE events offered for students. You can find the list of members of the Environmental Division on our website and you can find most of the people's contact information online or find them on LinkedIn.

Create a good LinkedIn profile, add a professional picture and sufficient details of your educational background and experience. Send a connection request by adding an insightful sentence on why you would like to connect with the person on LinkedIn. Also, use the AIChE Engage portal and go to the Environmental Networking sessions at the Annual AIChE and Spring Meetings

What would you say are good masters programs related to the environmental field?

SMT: Please see these lists:

<https://www.masterstudies.com/Masters-Degree/Environmental-Studies/>

<https://www.mastersprograms.com/rankings/best-masters-environmental-science/>

Note that you can always pursue a MS degree in chemical engineering with a faculty advisor who's research has an environmental focus. Identifying those faculty members will require some (online) work.

RDS: There is no easy answer here: you have to search out the universities, departments and especially the professors that offer courses and conduct research in the area that is your passion. As we discussed, the curriculum can be in Chem E, Civil Engineering or Environmental Engineering

Any recommendations for someone who already has a job, but is looking to still get involved in environmental work on the side?

RDS: Volunteer with AIChE and take on assignments within the Environmental Division. You will learn from others and develop a resume that shows activity in the field. Take some courses or attend some webinars in the field in your spare time. You'll get to know people this way as well as be able to build your environmental credentials.

What is more helpful for fresh graduate chemical engineers to build their professional environment career? Is it better to have some experience in industries that affect the environment or to start directly in the environment field?

RDS: It really depends on what you want to do. For example, do you want to learn say all about refining processes and how to help an operating company minimize its footprint? Or, do you want to work for a firm that services all types of industries and government agencies? There you will have a variety of projects impacting these various businesses.

Would you consider research and internships of equal value to an undergraduate student?

SMT: Yes, I would.

KMY: Both offer you additional learning experiences and if you can acquire a skill or have a final product (technical paper or report) from these experiences, then they will help in advancement of your career.

For the programming areas of ENV, will there be a solar section?

RDS: Most likely no. We are largely media organized and apply the requisite skills to the operating sector.

GR-M: Not for this year, but a solar session related to the area 09H: Energy & Climate Change can be proposed and offered for 2022 meetings. Please join us and ask to be part of our programming needs.

Online Answered Questions: please view the recording

What do you like about your field/Industry?

This question has been answered live

What advice would you give to students in Environmental Engineering OR any student aspiring to go in the Environmental Industry?

This question has been answered live

What advice do you have for recent graduates without internship/co-op experience? Any specific advice about renewable/sustainable energy would be greatly appreciated.

This question has been answered live

Due to how broad chemical engineering is, how were you sure the environmental sector was right for you? Did you try other industries like food, oil and gas? What would you advise a first year chemical engineering student who is interested in environmental sector but also wants to try other industries?

This question has been answered live

This question has been answered live

Would you advise chemical a engineering major who wants to pursue a career in the environmental sector to minor in environmental science?

This question has been answered live

As a student in a current bachelor's program. I would like to research in the environmental feild for my master's degree. Could you all tell a little bit of the process of choosing your graduate college? And how the graduate school process works?

This question has been answered live

Can you work in the consulting field without having a PhD?

This question has been answered live

As a chemical engineering undergrad, how worth it is it to get a masters/PhD? Would it be advisable to get a graduate degree in environmental engineering instead of chemical engineering if we're dead-set on doing environmental work, or are they pretty much interchangeable?

This question has been answered live

What are some trainings that Chemical Engineering students can take while they are still in school? Something like the SChE certificates, but for Environmental engineering?

This question has been answered live

What do you see in the future of environmental consulting? More carbon capture/sequestration technology, water treatment, energy usage, etc.? Do you predict regulations will be more strict in the future and how do you see environmental consulting changing?

This question has been answered live

How did the pandemic change your typical day? And how did you cope with the changes?

This question has been answered live

Dr. Siegel mentioned that , on top of technical prowess, 'soft skills' are important for consulting. For the panellists involved in both the Academic and Government sectors are there any particular skills you feel are important on top of technical ability?

This question has been answered live

What do you see in the future of environmental consulting? More carbon capture/sequestration technology, water treatment, energy usage, etc.? Do you predict regulations will be more strict in the future and how do you see environmental consulting changing?

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