

Corrosion Modeling Basics (CMB) Course September 2020

Instructor: Diana Miller, PhD

Time: 2 days (One 3-hour web session each day)

Course Description: Training in OLI Corrosion simulation techniques using OLI Studio: Stream and Corrosion Analyzers

Summary: The Corrosion Modeling Basics course is designed to train attendees on how to use OLI software and its underlying chemistry and thermodynamic principles. Participants will learn how to create corrosive environments (either as ionic or molecular stream inputs), specify environmental parameters (pH, O₂/ CO₂/ H₂S concentration, flow dynamics, temperature, etc.), and set up corrosion rate calculations. At the end of the course, participants will be able to formulate and build their own applications and interpret the data presented in reports and plots.

Class Content

This workshop will teach electrolyte chemistry and corrosion concepts, as well as how to navigate the OLI Software interface.

Day 1

- Introduction to **OLI Studio: Stream Analyzer**
- The User Interface – Workspace and Tool bars
- Stream Definition – Enter components, composition, and conditions such as T, P, etc.
- Types of calculations
 - Single point calculation using variety of equilibrium methods: Isothermal flash, bubble / dew points, solubilities, set pH, autoclave calculation, etc.
 - Single and dual surveys to study trends using independent variables of T, P, composition, and pH
 - Contour plot
- Review stream results
 - Identifying the main report tables
 - Output interpretation, including customization of plots and reports
 - Contour plots
 - Exporting data

Day 2

- Water Analysis
 - Entering ionic inflows
 - Converting an ionic inflow into a molecular inflow
- Introduction to **OLI Studio: Corrosion Analyzer**
 - RedOx reactions
 - Pourbaix Diagrams
 - Corrosion rates
 - General Corrosion Rates
 - Localized Corrosion Propensity
 - Polarization Curves