**Topic:** Building Science Gateways

**Presenters:** Marlon Pierce (IU), Suresh Marru (IU), Gregor von Laszewski (RIT), Wenjun Wu (UC)

**Agenda:** The purpose of this tutorial is to cover the basics of building Web-based science gateways. In Part 1, we will provide an overview of gateway architectures present and future.  This will include an examination of the current state of practice using OGCE tools as examples (prelude to Part 2).  We will then discuss the relevance of social networking, gadgets, and new Web security models for next generation portals (prelude to Part 3).   We will additionally review TeraGrid Gateway specific design issues (such as community accounts), requirements (such as usage reporting), and hosting using the TeraGrid gateway hosting service.

In Part 2, we will cover common development issues such as wrapping science applications as services, combining services into workflows, and building Web interface components.  We will discuss integration of reliability and information services based on experiences with LEAD and GridChem gateways.  Examples and hands-on exercises will be drawn from the OGCE tools. See http://www.collab-ogce.org, particularly the Workflow Suite, Axis Services, and GTLAB sections.   For examples of earlier tutorial material on these topics, see http://www.collab-ogce.org/ogce/index.php/Tutorials

In Part 3, we will examine new approaches for building science portals based on lessons learned from the Web 2.0 community. These include the use of JavaScript libraries for science application mash-up building, developing Open Social compatible Google gadgets and containers, using JSON-RPC, and using OAuth and OpenID for security. Hands-on examples will be provided using open source code developed for the Cyberaide, Open Life Science Gateway, and SIDGrid.

**Participant Prerequisites:** Part 1 of the tutorial is open to all levels of participants. Parts 2 and 3 require general experience with server-side Java and JavaScript.  Parts 2 and 3 include hands-on sections, so a laptop with Mac OS or Linux is required.

**Facility Prerequisites:** Participants will need wireless access and guest TeraGrid credentials.

**Level:** Introductory (Part 1), Intermediate-Advanced (Parts 2-3).

**Length:** 1 day. 1/2 day is possible with shorter hands-on sections.