



**Locations:**

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## **Shock Analysis with USA / LS-DYNA**

**Instructor: Tom Littlewood**

**3 Days - \$750 Students \$375 w/student ID**

**Includes on site continental breakfasts, lunches, breaks, class dinner**

**Includes 30-day LS-DYNA demo license to practice**

### **Prerequisites:**

1. **Students must be directly employed by a current USA licensed entity, typically a government agency or corporation.**
2. **International students must preregister for the class through a purchase order of the USA licensed entity. That purchase order must identify the attendee by name, department, supervisor, and passport number. The attendee must present the passport when attending.**
3. **Prior LS-DYNA experience is recommended because there are exercises throughout the class.**

### **Course Outline**

- **DAA Field Solver**
    - Fluid structure interaction and DAA background
    - Fluid boundary mass matrix development and modeling procedures
    - Fluid structure interaction approximations and block low rank solution methods
    - Time integration procedures
    - Shock wave loading, bubble loading, and combined shock-bubble loading
  - **NRB Field Solver**
    - Potential formulation for cavitating acoustic fluids
    - \*mat\_acoustic procedures in LS-DYNA and usage with USA
  - **Miscellaneous**
    - Hydrostatics, preloads, residuals, in-fluid natural frequencies, and MPP usage
    - Cavitating spectral element and cavitating fluid element alternatives to \*mat\_acoustic
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