

---

**The Geometry Of Thinking**  
**Introduction to Buckminster Fuller's Ideas and Practices**  
**Curt McNamara**  
**curtmcn@gmail.com**  
*Rev 0.1 January 11, 2019*

---

### **Course Description**

In this course we will study the work of Fuller in sustainability, learn what design science is, and utilize his design principles to transform our work.

Our assignments are inspirational, practical, and designed so students can integrate the philosophies into their own design practice.

In addition to the assignments, there will be video lectures, and a short quizzes to round out the course.

The main goal of the course is to fully acquaint students with methods of design science, and provide opportunities to express these methods in their own design areas. The main objective of the course is to practice applying the geometry of nature to the design process.

**Course Learning Objectives:** Design for the future (and sustainable design) means working with nature by integrating our artifacts into natural systems. In this course, students will learn how natural systems can inform our design and practice. Weekly assignments will cover the principles of design science, the geometry of nature, and the ways to put these principles to work.

---

### **Required Textbooks:**

- Jay Baldwin *Bucky Works: Buckminster Fuller's Ideas for Today* (1996) ISBN-10: 0471198129
- Amy Edmondson: *A Fuller Explanation* (2009). ISBN-10 061518314X, or [http://books.google.com/books?id=F6n2dZJ1POwC&printsec=frontcover&source=gbs\\_ge\\_summary\\_r&cad=0#v=onepage&q&f=false](http://books.google.com/books?id=F6n2dZJ1POwC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false)

### **Recommended text:**

- Joachim Krausse and Claude Lichtenstein (ed) *Your Private Sky: R. Buckminster Fuller* (1999). ISBN-10: 3907044886

---

**Assignments / Deliverables:** Brief overview of required assignments and relationship to course grade.

**Course Calendar:**

**Week 1: Mission and resource inventory**

- **Read** The Mission of Guinea Pig B in *Buckyworks*  
**Watch:** *Drive by RSA Animate (Daniel Pink)*
- **Do:** Your goal for the course, inventory of resources available

**Week 2: Nodes and Relations: Energy Events and System**

- **Read** Energy Events in *A Fuller Explanation*
- **Do:** Model an energy event, create a 3D system model

**Week 3: The Shape of Nature**

- **Read** Systems in *Synergetics*  
How Nature Builds in Your Private Sky (scan will be provided)  
Systems and Synergy; Tools of the Trade in *A Fuller Explanation*
- **Do:** Create model and add triangulation, describe frequency in the context of a model, perform an exploration in Synergetics

**Week 4: System and you.**

- **Read** Return to Modelability in *A Fuller Explanation*  
Navigator in *Your Private Sky* (scan will be provided)
- **Do:** Create a boundary diagram, create a polyhedral model of yourself

**Week 5: Project One**

- **Read** as needed previous materials
- **Do:** Create a project description that includes navigation, goal, resources, map, forces, material, and timeframe

**Week 6: Systems Coupling and Tensegrity.**

- **Read** Tensegrity in *Your Private Sky*, (scan will be provided)  
Geodesics to Tensegrity in *A Fuller Explanation*
- **Do:** Create a tensegrity structure, create a model of systems coupling

### **Week 7: Mapping Resilience**

- **Read** Tune-in-ability in *A Fuller Explanation*  
Spaceship Earth in *Buckyworks*
- **Do:** Create a comprehensive anticipatory design science plan, define a geoscope to monitor

### **Week 8: Using The Tools**

- **Read** Web materials including material from *Synergetics*
- **Do:** Geoscope/Dashboard or Systems Research Lab or Model It! or Networks

### **Week 9: Generalized Principles**

- **Read**, Structure and Pattern Integrity and Systems and Synergy in *A Fuller Explanation*
- **Do:** Generalized principle and trimtab.

### **Week 10: Project**

- **Do:** Prototype, testing