



# Engineering & Environmental Science Program

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**Summer 2024**

@Dokken 8:45am-12:15pm

## **Syllabus**

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*Objectives: Provide students with a better understanding of the various skills, disciplines, and opportunities within the engineering and environmental science industries.*

### **Week 1 – May 28**

**8:45 – 9:45am – Large Conference Room**

#### **Welcome and Introductions**

Led by: Sarah Holm, Vincent Chevreuil

- Welcome and introductions
  - Getting to know the students
  - Dokken and industry overview
  - Example projects (before and after)
  - Worksheets
  - Sample project explanation
  - Overview of the environmental process
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**9:45 – 11:00am – Large Conference Room**

#### **Intro to AutoCAD / Design and Problem Solving**

Led by: Eric Espinoza, Daniel Yun

- CAD and various uses
  - Design a project
  - Proactive responses and creative solutions – what impacts to consider
  - Why are things designed the way they are
- 

**11:00 – 12:15pm – Large Conference Room**

#### **Air and Noise**

Led by: Ken Chen

- Presentation on Noise and Air overview
  - Air Quality and Noise measurements (field measurements/app on phone)
  - Simple Noise Model/Presentation
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### Week 1 – May 30

#### **8:45 – 9:45am – Large Conference Room**

##### Utilities

Led by: Kris Kofoed

- What are utilities: gas, water, electric, telephone (above ground and below ground)
  - The importance of utilities and how to find/detect them
  - How to protect and/or relocate utilities
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#### **9:45 – 11:00am – Large Conference Room**

##### Signage, Signals, and Lighting

Led by: Jenny Kobrya

- Need for sign and striping; standardization
    - Shapes, colors, meaning
  - Type of signals (traffic, ramp meter, hybrid, etc.)
    - How they work: detections, phasing
  - Street lighting: purpose, types, designing
  - Why it matters
- 

#### **11:00 – 12:00pm – Large Conference Room**

##### Broadened Networks and Opportunities

Led by: Rick Liptak

- Every journey begins with the first step
  - Avenues that lead to new experiences and opportunities
  - Networks of the Dokken and engineering universe
  - How to achieve success
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#### **12:00 – 12:15pm – Large Conference Room**

Vincent & Sarah debrief

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### Week 2 – June 4

#### **8:45 – 11:00am – Large Conference Room/Outside**

##### **Biological Resources**

Led by: Vincent Chevreuil, Sarah Holm

- Environmental planning overview and the role of biologists
  - Biological field survey
  - How this work applies to projects
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#### **11:00 – 12:00pm – Large Conference Room**

##### **Bike Trails**

Led by: Tony Powers, Lana Torlak

- Introduction to Bikeway Master Plans (Rancho Cordova)
  - Planning, design, and operation of a bike path
  - Types of bike paths
  - People and process to make bike trails happen
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#### **12:00 – 12:15pm – Large Conference Room**

Vincent & Sarah debrief

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### Week 2 – June 6

**8:45 – 9:45am – Large Conference Room**

**Water Resources**

Led by: Ashley Orsaba-Finders

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**9:45 – 10:45am – Large Conference Room**

**Intro to AutoCAD / Design and Problem Solving**

Led by: Eric Espinoza, Daniel Yun

- CAD and various uses
  - Design a project
  - Proactive responses and creative solutions – what impacts to consider
  - Why are things designed the way they are
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**10:45 – 12:15 pm – Large Conference Room**

**Presentation**

Led by: Albert Stricker, City of Rancho Cordova: Public Works Director

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### Week 3 – June 11

**8:45 – 11:00am – Large Conference Room/Outside**

#### **Cultural and Historic Resources**

Led by: Amy Dunay, Michelle Campbell

- Who writes the history books?
    - Why cultural resources are involved in the environmental process
  - Cultural and historic record search and resource identification
    - Reporting efforts of resources
  - Cultural resources field survey – archaeological dig!
  - Why it matters
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**11:00 – 12:00pm – Large Conference Room**

#### **Presentation**

Led by: John Klemunes, Dokken Engineering

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**12:00 – 12:15pm – Large Conference Room**

Vincent & Sarah debrief

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### **Week 3 – June 13 (EXTENDED DAY)**

#### **8:45 – 10:15am – Large Conference Room**

##### **Geographic Information System (GIS)**

Led by: Zach Liptak, Aliana Hale

- Introduction to ArcGIS mapping software
  - Create an exhibit (to keep) visually representing information
  - Mapping of habitat, transportation features, community resources, and more
  - Why this matters and uses beyond transportation
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#### **10:15 – 11:00am – Large Conference Room**

##### **Right-of-Way**

Led by: Taylor Ross

- Why is right of way required? Constitutional right of eminent domain
  - Right of Way process – plats and legals, title reports, appraisals, deeds
  - Project examples – before and after photos (fencing, trees, signs, relocations)
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#### **11:00 – 12:15pm – Large Conference Room**

##### **Bridge Design**

Led by: Esmeralda Gutierrez, Nancy Ortega

- What is considered a bridge and where they occur
  - Bridge design and aesthetics (making a bridge look cool)
  - Selecting the right type of bridge and construction methods for each (pros and cons)
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#### **12:15 – 12:45pm – Large Conference Room**

- Lunch (Provided)
  - Vincent JeoParty Game!
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#### **12:45 – 1:30pm – Large Conference Room**

##### **Resumes and Interviewing**

Led by: Ingrid Jana

- How to write a resume
  - How to prepare for an interview
  - What to expect during the interview
  - Why is it important to email a thank you notice to the employer?
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**1:30 – 2:15pm – Large Conference Room**

**Financial Information**

Led by: Camran Sadeghi

- Understanding job offers
  - Personal finance discussion
  - Planning for retirement at the start of your career
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### Week 4 – June 18

#### **8:45 – 10:00am – Large Conference Room**

##### **Shovel Ready (PS&E)**

Led by: Rosa Griggs

- How to estimate costs of a project (learn what PS&E is)
  - Amount of materials needed and current cost of materials
  - Construction readiness and preparation
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#### **10:00 – 12:00pm – Large Conference Room**

##### **Intro to AutoCAD / Design and Problem Solving**

Led by: Eric Espinoza, Daniel Yun

- CAD and various uses
  - Design a project
  - Proactive responses and creative solutions – what impacts to consider
  - Why are things designed the way they are
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#### **12:00 – 12:15pm – Large Conference Room**

ASCE Cities of the Future (<https://www.asce.org/initiatives/cities-of-the-future>)

Vincent & Sarah debrief

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### Week 4 – June 20

**8:45 – 10:00am – Large Conference Room**

**Construction Management**

Led by: Susan Pinal, UNICO

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**10:00 – 10:30am – Large Conference Room**

**Surveying**

Led by: Rob Markes, UNICO

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**10:30 – 12:15pm – Large Conference Room**

**Student Presentations & Wrap Up**

Led by: Vincent & Sarah

- Student Presentations ~5 min/person
  - What they would like to learn more about
  - What can Dokken provide them in the future
  - Certificates
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