

Randall Boone, Research Scientist and Professor, NREL and ESS, NESB B 244  
(970) 491-1806 [www.randallboone.org](http://www.randallboone.org)  
[Randall.Boone@ColoState.edu](mailto:Randall.Boone@ColoState.edu)

John Moore, Professor, Director, and Head, NREL and ESS, NESB B 203  
(970) 491-1796  
[John.Moore@ColoState.edu](mailto:John.Moore@ColoState.edu)

This field course will provide students with opportunities to increase the depth of their understandings of ecosystem science and sustainability through case studies. The weaving together of ecological insights and social perspectives will be fundamental to each of the management issues studied. This year the utility of spatial analysis will be a focus as well.

The Framing Questions for the course will be:

1. Components of the system
2. Boundaries of the system
3. Internal processes and interactions that cause changes over time (chronic or episodic?)
4. External drivers that cause change over time (chronic or episodic?)
5. How the system influences larger systems – how to scale up?

Addendum question: How might other people's perspectives lead them to frame this system differently?

Schedule (subject to change):

Saturday, Aug. 17 – A 90 minute “get to know each other” and logistics meeting at 2 pm. Let's squeeze into NESB 215, it's easiest and crowding will be brief. You will be asked to sign a release of liability.

Sunday, Aug. 18 – Depart from the parking lot on the east side of the Natural and Environmental Sciences at 11 am. We will be stopping in Guernsey, Wyoming to see wagon ruts, Register Cliff, and to have a break. We will have dinner at Hot Springs, South Dakota, and arrive at Wind Cave after 7 pm.

Monday, Aug. 19 – Belowground ecosystem issues and sustainability questions at Wind Cave National Park. In the afternoon, we will learn about mammoth biology at Mammoth Site, Hot Springs.

Tuesday, Aug. 20 – Aboveground ecosystem issues and sustainability questions at Wind Cave National Park. We will discuss bison, elk, prairie dog, and ferret management. In the evening, we *may* explore bat biology and attempt to locate ferrets or salamanders.

Wednesday, Aug. 21 – We will be in Badlands National Park, South Dakota. You may gain some practice in vegetation monitoring, hear about the geology of the area, and other issues.

Thursday, Aug. 22 – We will visit Mount Rushmore and learn about its management prior to travel to Pawnee National Grasslands, Colorado. Rest and regroup in Pawnee.

Friday, Aug. 23 – Long-term ecological and livestock production research in a grassland system, and a visit to a NEON tower.

Friday Sept. 20: *Mandatory* class meeting, 3-5 PM, NESB B302 (to be confirmed). The agenda will be announced later.

### Assignments and grading

1. Daily notebook: students will keep a notebook for the major points covered each day; at the end of the day, they will write down 3 of the most important points, and 3 points that were novel, unexpected, or of particular interest (though maybe not the most important for the system). (40% of grade)
2. Portfolio: On Sept. 20 students will turn in a portfolio that includes the original daily notebook and a report that takes three of the topics from the course and analyzes each according to the Framing Questions (each topic would likely fill about one page of single-spaced text) (60% of grade).

Grading will be 90-100=A; 80-89 = B; 70-79 = C; 60-69 = D; <60 = F.

### **Equipment list**

We will be staying at the VIP building at Wind Cave National Park. That may include sleeping on the floor or cots inside the building, depending upon whether or not there are other users at the time. As such we must be prepared to camp outside (or you just can – almost everyone will be in tents outside). On the last night we will be staying in buildings with beds.

### Academic items:

A notebook for writing daily, and a pen or pencil – or you can (of course) do it electronically if you would prefer.

### Personal items:

- Sleeping bag, warm to the upper 50s or so (whether you're sleeping inside or camping outside)
- Sleeping pad, if you wish
- Pillow, if you wish
- Tent (if you have one; don't buy one – we will have plenty of space, and will be bringing some tents ourselves)
- Flashlight/headlamp
- Toiletries (soap, toothbrush, toothpaste, shampoo, sunblock, bug repellent, etc.)
- Towel

- Rain gear (including pants if possible)
- Clothes for the week, including a warm jacket, long pants, something with fleece, and a hat for the sun
- Hiking boots (if you don't have any, then running shoes or similar would be okay)
- Backpack of some kind to carry your supplies and lunch
- Camera and binoculars (if you'd like)
- Sunglasses (if you'd like)
- Water bottles (2 L or so total capacity)

## **Food**

The basic food for the week will be provided (see menu). We'll have coffee, but you should plan on bringing other drinks of your choice (such as tea or sodas). Feel free to bring along any special foods you might like, including favorite snacks, or some alternative food if one day's menu looks unappealing. Vegetarian options will be available.

## **Behavior**

In a group situation, it will be important for everyone to help out (see the chores on the next page). Recreational drugs, including marijuana, are illegal where we'll be going, so don't bring any. We'll have fun in the evenings, but it's courteous to be quiet after 10 for people (especially old professors...) who need to sleep. Safety – it's easy to get injured in the field, so safety is everyone's responsibility. We'll talk more about that.

## **Meals**

Breakfasts will be continental entries (bagels, yogurt, juices, etc.).

Lunches will be packed by each student, selecting from a variety of goods. Thursday's lunch may be purchased.

Dinners will be:

- Sunday – Eat on the road
- Monday – Grilled burgers, hot dogs, veggie burgers, chips
- Tuesday – Grilled chicken, steaks, Portobello mushrooms, corn, veggie skewers
- Wednesday – Burritos, with chicken, beef, beans, sauces, veggies
- Thursday – Pizza using prepared shells, sauce, cheese, various toppings

**Special Needs:** Any student who needs special accommodations or has special needs is encouraged to speak with us.

<b>Student</b>	<b>Group</b>
Emma Balunek	A
Jessica Bennett	A
Megan Carp	A
Seth Clark	A
Audrey Colley	A
Stephanie Erickson	B
Charlie Francis	B
Eliot Hawkes	B
Matthew Henson	B
Sam Hudgens	C
Brendan Itsell	C
Maxx Ives	C
Ryan Johnson	C
Meijia Li	C
Renee Lile	D
Liam McKee	D
Mallory McKenna	D
Olivia Rautiainen	D
Davis Rhodes	D
Andy Rohlf	E
Henry Romano Weller	E
Rae Szymanski	E
Austin Wei	E
Kan Xu	E

	<b>Sun</b>	<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thurs</b>	<b>Fri</b>
<b>Breakfast preparation:</b>		A	B	C	D	E
<b>Breakfast cleanup:</b>		C	D	E	A	B
<b>Dinner preparation:</b>		B	A	A	B	
<b>Dinner cleanup:</b>		E	C	D	E	
<b>Final clean-up supervisors:</b>					C <sup>1</sup>	D <sup>2</sup>

<sup>1</sup> – Wind Cave VIP building

<sup>2</sup> – Short Grass Steppe houses, Pawnee

### **Need Other Help?**

CSU is a community that cares for you. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. “Tell Someone” by calling 970-491-1350 to discreetly discuss your concerns (<http://safety.colostate.edu/tell-someone.aspx>)