Course Summary
2010 New Zealand Interim Trip

Course Title: INDS 127 - Envisioning Environmental Science

Course Goal and Objectives: The cross-section of students from different disciplinary backgrounds that typically take this course provides a unique opportunity to explore the true interdisciplinary nature of environmental science. This is done through observation, inquiry, discussion, and readings. The goal of the course - to instill a long lasting excitement in science and the environment through a renewed interest sparked through civic engagement with 3rd and 7th grade students. The objectives are as follows:

• Develop a fundamental understanding of a number of introductory topics that are current within environmental science and engineering.
• Develop a sense of the importance of civic engagement with 3rd and 7th grade students, aided by various forms of current and emerging technologies.
• Develop a strong understanding as to how both “Stewardship” and “Education” play very important roles in the sustainability of natural and developed environments.

Learning Outcomes: Upon completion of the course:

• Students will acquire a level of proficiency that will allow them to understand and communicate the terminology, principles, and issues that are important to current and future global environmental concerns.
• Students will develop mentoring skills, and develop an appreciation and understanding of the importance of civic engagement and the role of communication about topics of global concern with others.

Course Description: College students traveling to New Zealand partner with home-based 3rd and 7th grade students to explore various environmental science topics through an inquiry based, technology driven, and civically-minded program. The program is focused on arming students with academically sound tools that will prepare them to better understand our globally-connected environment, to prepare them to be better stewards of the environment, and to develop the necessary knowledge base to assess and respond to the impact of the global environmental issues that accompany a 21st century lifestyle.

The Trip – The adventure through New Zealand will start on the North Island immediately after landing at the Auckland airport on Tuesday, January 5th at 5:25 am. Our first stop will take place just south of the airport where we will tour eerily-lit caves. Immediately following our spelunking experience, we will head to Rotorua for an evening of class discussion and leisure. The next day the tour will head to Matata, where students will spend two days on a Marae where they will explore the Maori culture and their role, past and present, in the evolution of New Zealand. As the story is told, a number of guided tours throughout the Bay of Plenty region will help to highlight the importance that the environment has had in New Zealand’s history. Next, the tour will next to will head to the South Island. Starting in the wetlands of Christchurch, expert guides will speak to the importance of wetlands throughout New Zealand. Other highlights will include swimming with Hector’s Dolphins (the world’s smallest dolphins) at
Akaroa, a town that sits at the edge of a beautiful harbor inside the eroded crater of a huge extinct volcano, a hike on Fox Glacier, and a safari by way of a jet boat on the Dart River. Students will also have a day on their own to explore the premier vacation stop of the two islands, Queenstown.

**Pedagogy** - The course intends to demonstrate how inquiry-based study, when built on the foundation of Lafayette College’s primary areas of study (Humanities, Social Sciences, Engineering, and Natural Sciences) and integrated through a civically-minded program, provides the tools, knowledge and skills needed to truly empower students. This empowerment will result in a unique understanding that will help students to become better stewards of our environment, as well as to enable them to address issues impacting our environment in more effective ways. New Zealand provides a most unique environmental setting from which students will enjoy a one-in-a-life-time environmentally-enriched adventure. The instructor guided mentoring experience with 3rd and 7th grade students will help hone crucial communication skills.

**Details of Pre and Post Class Expectations** - Students are required to attend six scheduled classes in the semester prior to departure; five afternoon/evening classes and one weekend class (Saturday, December 5th). Students are also expected to complete a pre-departure paper and project. Groups will be partnered with 3rd grade and 7th grade students of Spring Cove School District. Interaction will take place through blogging, email, webcast, and video conferencing as well as two face to face visits. A personal reflection report will be due at the end of the first week of the spring semester. A final educationally-enriched hands-on activity project will be due at the end of the second week of the spring semester. A final collaborative presentation with our K-8 partners will be done through video conferencing within three weeks of our return (date to be announced upon our return).

**Deliverables:**
- One page summary of course environmental topic
  - Due at second pre-trip meeting (October 15th)
- Video Clip for grade school students
  - Due October 30th by 4 pm.
- Proposal for overall topic
  - Due at the fifth pre-trip meeting (November 17th)
- Personal Reflections Report
  - Due first Friday of spring semester (January 29th)
- PowerPoint Presentation via Video Conference to 3rd grade class
  - Approximately two – weeks after our return
  - Tentative date, Tuesday, February 2nd, 7 – 10 pm
- Interim Project – Educational activity for third grade partners
  - Due 2nd Friday of spring semester (February 5th)
  - Presented to students approximately 3-4 weeks into spring semester
    - Tentative date, February 9th, 6:30 am – 6 pm

**Groups Formation and Topic Decision:**
- Thursday, October 8th
- Multidisciplinary Teams of 3
Pre-Trip Class Dates:

- Thursday, October 8th, 7 – 10 pm
- Friday, October 16th, 5 – 9:00 pm
- Wednesday, October 21st, 7 – 8:30 pm
- Thursday, October 29th, 7 - 8:30 pm
- Monday, November 2nd, 12 – 1 pm
- Tuesday, November 17th, 12 - 1 pm
- Saturday, December 5th, 7am - 6 pm

Summary of Trip Itinerary

- **January 2nd**: Arrive on Lafayette College Campus on Saturday, by 9 am
  - Trip preparation classes from 9 am to 5 pm.
  - Dinner on your own.
- **January 3rd**: Bus ride to JFK leaves Lafayette College at 6:30 am on Sunday
- **January 5th**: Land at Auckland International Airport, Tuesday at 5:25 am
  - Trip to Waitomo Caves
  - Evening class discussions
  - Accommodations in Rotorua
- **January 6th** through **January 7th**: Bus ride to Matata in the Bay of Plenty Region
  - Accommodations in Matata at Ngati Umutahi Marae
  - Geothermal Experience
  - Kawarau Pulp and Paper Mill
  - Kawarau Geothermal Power Plant
  - Mt. Tarawera
  - Water Sampling Exercise
  - Evening class discussions
- **January 8th**: Fly to Christchurch
  - Accommodations in Christchurch, Jan. 8th and 9th
  - Travis Wetlands
  - Christchurch City Wastewater Treatment Plant
  - Late afternoon discussion with head Christchurch Senior Coastal Scientist at Brighton beach
- **January 9th**: Bus trip to Akaroa
  - Swimming with Hector’s Dolphins
  - Other environmentally-related activities in Akaroa
  - Evening class discussions
- **January 10th**: Bus trip to Westport via Lewis Pass
  - Mauria Springs
  - Inangahua
  - Stockton Mine
  - Accommodations in Westport
  - Evening class discussions
- **January 11th**: Bus trip to Franz Josef
  - White Heron Colony Tour
  - Accommodations in Franz Josef
  - Evening class discussions
• January 12th: Late afternoon bus trip to Queenstown
  o Visit both Franz Josef and Fox Glacier; hike one of the two glaciers
  o Lake Matheson
  o Accommodations in Queenstown, Jan. 12th and 13th
• January 13th: Free Day in Queenstown
  o Make sure to plan day ahead of time and pre-book activities
• January 14th: Late afternoon bus trip to Mt. Cook
  o Dart River Safari
  o Bus tour Arrow Town
  o Accommodations at Mt. Cook
• January 15th: Later afternoon bus trip to Mesopotamia Station
  o Tasman Glacier
  o Lake Pukaki
  o Lake Tekapo
  o Mount Jon Astronomical Observatory
  o Evening of reflections and discussion
  o Accommodations at Mesopotamia Station
  o Evening class discussions
• January 16th: Bus trip to complete the loop on the South Island ending back in Christchurch
  o Rakaia Gorge
  o Rangitata Diversion Race
  o Fly home!

Topics
1) Environmentally Friendly Building Practices (Green building)
   i) Materials
   ii) Water usage
   iii) Wastewater
   iv) Placement
   v) Attitude

2) Geologic Role in the Natural Environment
   i) Land formation
   ii) Topography
   iii) Humans and nature
   iv) Soils
   v) Land Use
   vi) Geo-Hazards
      (1) Volcanic
      (2) Seismic
      (3) Landslides.

3) Wetlands
   i) What role do wetlands play in environmental processes?
   ii) Different types of wetlands
   iii) Wetlands manmade and natural

4) Water Source, Usage and Stormwater Control (Anthropogenic Impact)
i) Building permits
ii) Phase II of NPDES
iii) Delivery Systems to homes
iv) Type of water people use for drinking/watering lawns etc.
v) Bottled vs. Tap
vi) Reuse of water

5) Flora and Fauna found in City/Residential/Wilderness
   i) How water impacts flora and fauna
   ii) Developed areas for wildlife vs. natural areas
   iii) Differences between US and NZ

6) Climate Change and Glaciation
   i) What is being done to stop climate change?
   ii) Can you find evidence of the impact of climate change?
   iii) How do ? and other emissions affect air quality (also rain fall)
   iv) Glacial Mass Balance
   v) Glacial Retreat

7) Wastewater and Solid Waste
   i) Toilets
   ii) Type of treatment
   iii) How do different countries handle waste disposal
   iv) Reuse of water
   v) Landfill and waste disposal sites.

8) Energy
   i) US vs. NZ
   ii) Geothermal, Hydro, Coal, Oil, Wind???
   iii) Choice of energy – Sustainable/Ecofriendly

**Six Pre Classes**

1) Class I (Thursday, October 8th; 7 – 10 pm) – Introductions and Overall Scope of Trip
   i) What the course is about
   ii) What student need to do ahead of time
   iii) What student need to bring
   iv) What will be required
   v) Student choose group members and topic
   vi) In class exercise – Summary of topics (use travel itinerary to develop plan)

2) Class II (Friday, October 16th; 5 – 9 pm) – Mentoring experience and Student Summaries
   – Squarcia, Qualtere, Finger, Kney, Marinelli
   i) Summaries handed in.
   ii) Mentoring Exercise 7 – 9
   iii) Student presentations on topics (9 – 10 pm, timed – 5 minutes)

3) Class III – (Wednesday, October 21st 7 – 8:30 pm) – Mentoring feedback - Squarcia and Qualtere
   i) Mentoring feedback and discussion

4) Class IV – (Thursday, October 29th - 8:30 – 10 pm) Intro to Geology – Germanoski,
   i) Lecture - Basis of Geology and Important Geologic Features of New Zealand
5) Class V – (Monday, November 2nd, 12-1 pm) – Kney/Husic Session (TBA)
6) Class VI – (Tuesday, November 17th, 12 – 1 pm) - Webcam and Electronic Interactions
   i) Webcam interaction with Host 3rd grade class
7) Class VII - (Saturday, December 5th, 6:30 am – 6 pm) – Trip to Martinsburg
   i) Culmination of mentoring exercise

Student Task List - Assignments
1) Two student leaders
2) Tee shirt designer
3) Coordinate get to know activities…at least two…one before we leave and one at Marae.
4) Coordinate meeting at airport and help coordinate who is bringing what.
5) Coordinate webcasts and arrange wakeup calls and who will talk…set up webcam etc.
6) Group check person (callout for quick group check on bus, airport…etc)
7) Help with hotel and room assignments
8) Information on webpage
9) Passport and personal information collection
10) Special room assignment etc.
11) Projector person (carry and set up for all talks)

Personal Reflective Report
1) Creative picture of yourself on cover.
2) Develop a diary that focuses not only on personal observations, but also reflects on personal growth. Tie chosen topic to the general discussion, and the diary interactions with the 3rd grade class.
   i) Present questions you may have asked yourself throughout the trip and seek answers through various resources (web, books, etc.)
3) Pictorial summary of chosen topic supported by text should be included in report
   i) Pictures
      (1) Images are to be used to define the specific issues
4) Weave in general overview of topic supported by web references
   i) Areas of Discussion
      (1) General Observations
      (2) Comparisons US/New Zealand
      (3) Social Impact
      (4) Economic Impact
      (5) Science/Engineering
   ii) Each area of discussion should include how Stewardship plays a role in:
      (1) Sustainability
      (2) Anthropogenic Impact
      (3) Environmental Processes (Natural and developed)
5) Students should approach the report from their individual, different perspectives. Keep in mind that creativity and free thinking is encouraged. Because overall experience will not the same between everyone reports will vary in content and format
### Grading Breakdown
- One page summary of course environmental topic: 5%
- Proposal for overall topic: 10%
- Posting of a minimum of 35 pictures with captions (Posted by January 26th): 10%
- Personal Reflections Report (Due 2nd Friday of Spring Semester): 20%
  1. 10+ pages of text
  2. 12 point New Times Roman
  3. 1 inch margins T/B/L/R
  4. 1.5 line spacing
  5. Table of contents
  6. Use of headings and subheading
  7. All pictures included must be well defined with captions and properly identified with figure numbers, placed in Appendix
  8. Summary/Conclusions
  9. Web or other References (Follow APA format)
  10. Additional pictures with captions
  11. Appendix includes email diary to 3rd grade class
  12. Properly bound
- Third Grade Project (Due 2nd Friday of Spring Semester): 30%
- Task involvement throughout trip (at least 2 major responsibilities): 5%
- Participation in Webcasts and/or Classroom Visits: 5%
- Final Presentation (Date TBA- All group members must participate): 15%
  6 – 7 minutes
  6 – 7 slide… Should clearly define and highlight a specific take home message

### Questions and Answers
- **Meals?**
  - Dinner and Lunch are not included in the price of the trip. Breakfast will be provided at most destinations.
- **Washers and Dryers?**
  - Hotel Ibis Christchurch: They have 3 washers and 3 dryers in their communal guest wash station, they take NZD$2 each to operate and they have soap available for purchase.
  - Glacier Country Hotel, Fox Glacier: Guest laundry is available.
  - A-Line Hotel Queenstown: They have 2 washing machines & 2 dryers in their Guest Laundry. Machines are operated by tokens which are NZD$2 each and can be purchased at Reception. Washing powder is also available - NZD$1 per sachet.
- **Can students collect frequent-flier miles?**
  - Yes - Students must be prepared to take care of this when we check in at the airport.
- **What about getting proper currency ahead of time?**
  - Sure, but it is probably easiest to do this at the airport when we arrive at each destination or even at cash machines using bank cards. Traditionally this method will also provide the cheapest exchange rates.
- **Will cell phones work in either country?**
You must have International GMS capabilities on your phone, otherwise no. It is suggested to check with service providers to be certain your phone is set up properly and what rates you will be paying.

- Internet access?
  - Yes, all hotels should have DSL or better.
  - Cost not included in trip expenses

- Electricity and Plugs?
  - New Zealand - 230/240 volts, 50 hertz throughout. Most hotels supply 110 volts (meant for electric razors only). Other equipment an adapter/ converter will be needed unless the item has a multi-voltage option. All power outlets only accept flat 3 or 2-pin plugs, depending on whether a ground connection is present.
    - A RJ45 type plug as well as the 3 or 2 pin plug will be needed to connect laptops to an outlet.

- What to Bring
  - List of "Stuff to bring and think about" – Check out website
  - New Zealand Tips on Touring – Check out website
  - Passport and at least one other form of identification
  - At least one laptop (w/charger) per group
  - Camera (w/charger or spare batteries) and software and hardware to download pictures.
  - There will be baggage charges. These are not included in the ticket or cost of trip.
EMERGENCY CONTACT INFORMATION FOR EAST COAST TOURING GROUP TRAVELERS

In the event of an emergency while traveling, East Coast Touring requests that you complete the details below so that we may advise a preferred contact of your situation. Please complete the attached form and FAX to 610-253-6392 at least 70 days prior to departure (10/23/09). If we do not receive this information you may not travel.

Passenger’s Name: ___________________________________________________
Address:________________________________________________________________
City:___________________________ State:__________________ Zip:__________
Telephone Contact:____________________________________________________
Passport Number:_________________________ Expiration Date:_______________
Date of Birth:_________________________________________________________
Authority:____________________________________________________________

Your Preferred Emergency Contact (whilst traveling):
(Someone not traveling with you)

Name: ______________________________________________________________
Relationship:_________________________________________________________
Telephone Contact:____________________________________________________