

SYLLABUS
PRACTICUM ON ENERGY AND CLIMATE CHANGE, WINTER TERM 2014

COURSE NUMBER:	OLIS 612	INSTRUCTOR:	Kelly Hoell ("Hail")
CLASS HOURS:	T/TH 10-11:50 AM	COURSE CREDIT:	4.0
CLASS LOCATION:	Room 221 Friendly	E-MAIL ADDRESS:	kelly.hoell@goodcompany.com
OFFICE HOURS:	Th 12-1 EMU Fishbowl or by appointment	TELEPHONE/VOICEMAIL:	541-968-9034

MICROSOFT EXCEL LAB

LAB HOURS:	TH 3:30-4:50 PM	INSTRUCTOR:	Tracy Sagal
LAB LOCATION:	Room M283 Lawrence	E-MAIL ADDRESS:	tracy.sagal@goodcompany.com
OFFICE HOURS:	Th 5-5:30 EMU Fishbowl or by appointment	TELEPHONE/VOICEMAIL:	541-790-9229

COURSE DESCRIPTION AND OBJECTIVES

The world is facing an imminent challenge: where and how will we get the energy of the future as we face the end of the fossil-fuel era? Our current fossil fuel energy sources are dirty, finite, and are causing climate change. We have already begun an energy transition, but what will this mean for our economy, our society and our environment? What information do we need to know and what questions do we need to ask in order to clearly evaluate the options before us? And what actions can we take in business, government and society to maximize the benefits and minimize the disruptions?

These are the questions that this course will begin to answer as we start to look at a new energy vision for our planet and the numerous sustainability (economic, social and environmental) implications of such choices.

This class has four learning goals:

1. review energy and climate change basics; explore the extent to which climate change is an energy challenge
2. use math to measure the energy and carbon footprint of a household
3. review several key projections and plans for the already-begun clean energy transition
4. understand how effective energy management can address climate change

The lab portion of this course will focus on how to use a basic business and sustainability tool: Microsoft Excel. It has 3 additional learning goals:

1. understand the basics of Microsoft Excel
2. practice the techniques required for successful completion of class assignments
3. develop skills that will be useful in an employment context

COURSE MATERIALS

There are two required texts for this course:

1. David J.C. MacKay. Sustainable Energy - without the hot air (SEWTHA). UIT Cambridge, 2008. ISBN 978-0-9544529-3-3. Available *free* online at: www.withouthotair.com
2. Amory Lovins and Rocky Mountain Institute. Reinventing Fire: Bold Business Solutions for the New Energy Era (RF). 2011. Available for purchase at most book stores.

All additional course readings are in the public domain and are listed within this syllabus.

COURSE REQUIREMENTS

Deliverable	Due Date	Percent
Attendance and contributions to class discussion	Ongoing	10%
Attendance and contributions to lab discussion	Ongoing	10%
GHG Inventory Analysis due for peer review in class	January 28	30%
GHG Inventory Analysis due to Kelly	January 30	
Pro Forma Analysis due for peer review	February 27	30%
Pro Forma Analysis due to Kelly	March 6	
Final presentation to clients	March 11	
Final exam	March 17	20%
TOTAL		100%

GRADING POLICY: Grades will be based on the above individual and team assignments. *These assignments are not optional, but required to avoid receiving an incomplete for this course.* When students contact me ahead of time about conflicts related to assignments and/or due dates, I am (sometimes) able to work with them to determine a deviation from the general outline of the course to accommodate their circumstance. When I am contacted after the fact (except in cases of life and death emergencies) there is little I can do.

In order to receive full credit on assignments, each assignment must meet the following criteria:

- Assignments must be sent by e-mail to kelly.hoell@goodcompany.com *no later than 10 AM* on assigned due date.
- E-mails must include "OLIS 612" followed by a relevant description of the email content in the subject headings.
- Assignments must be sent as *both* a Microsoft Word document (or MS Excel or PowerPoint where relevant) and a PDF. The file names for both the Word/Excel/PPT doc and PDF must include a description of the assignment and your name or initials.

Late assignments or assignments that don't meet the above criteria will be penalized by a standard reduction of the grade. All assignments will be graded on three categories: spelling/grammar, structure/format, and content.

I believe in rewriting as the surest path to better writing. Therefore, for all assignments I will allow a rewrite. You will, in most cases, be able to get full credit for the assignment if you take advantage of all of my comments on the first version (and had submitted your original assignment on time and in the correct format – see bullets above).

You are expected to prepare for, attend, and actively participate in classes. Accordingly, the quality of your learning is directly related to the quality of your preparation. I encourage you to bring a laptop to class, but do not surf the web during class unless your purpose is tied to our discussion. These practices are disrespectful to your fellow students and to me. So please...don't. Thank you.

WRITING ASSIGNMENTS: You have two written assignments as part of this course:

(1) Household Carbon Footprint Analysis (Individual assignment)

In this assignment you will conduct a carbon footprint for a household (yours or someone from whom you can gather the necessary data). You will be responsible for collecting the data, calculating the greenhouse gas emissions using Microsoft Excel, and summarizing the results in a memo to the household's decision makers as you would to the decision makers of a business.

This assignment will simulate the process of conducting a greenhouse gas inventory for a business or government and will serve as the baseline data for your second assignment. See additional handout for specific assignment requirements.

(2) Lifecycle analysis of a household climate action opportunity (group assignment)

Building on the results of your household carbon footprint analysis you will evaluate (in Excel) the lifecycle energy consumption, GHG emissions and costs of one of four types of household purchases that could serve as an opportunity for emissions reductions. You will write an accompanying report (in Word) to examine which is the better choice based on your analysis and your client's context/needs. You may select ONLY from the following list (if you have other ideas discuss with Kelly first):

- **Car** (Compare a Toyota Prius vs. similar internal combustion engine OR Nissan Leaf vs. similar internal combustion engine. Define why the car you choose is similar to Prius or Leaf.)
- **Hot Water system** (On demand hot water system vs. traditional hot water tank)
- **Washing Machine** (Find and compare the most and the least energy efficient models on the market)
- **Household HVAC system** (compare an electric heat pump vs. a natural gas forced air system)

See additional handout for specific assignment requirements.

Presentation: At the end of the term you will present the results of your client's GHG inventory and the pro forma results for a climate action opportunity that meets the client's needs and context, describing the lifetime energy, GHG emissions and costs. You will give your recommendations on how to proceed, what to look out for, and what incentives and benefits might be available. Your client will be invited to hear your presentation in person.

See additional handout for specific presentation requirements.

COURSE POLICIES AND PROCEDURES

COMMUNICATION: I will communicate mainly by e-mail (kelly.hoell@goodcompany.com). Please put "OLIS 612" and a short description of the e-mail content in the subject heading to ensure I see your message. Please confirm I have the correct e-mail address for you at the beginning of the term and check this e-mail account regularly.

ATTENDANCE: Please inform me as soon as possible if you will be absent from any classes to determine if we can work out a way to accommodate the absence. Class attendance and participation count for 10% of your final grade (as shown above). If you are absent, please review that day's materials on Blackboard and be sure to get the notes and main points of any class discussions from a classmate.

ACADEMIC INTEGRITY: I will not tolerate plagiarism or cheating. If you are found to be cheating, I will, without exception, pursue punishment to the fullest extent that university and program policies allow. Sadly, these issues have become a significant problem on this campus and other campuses; sometimes they occur in gray areas that are not obvious to the student. Please become familiar with UO's policies:

- Conduct (including plagiarism): <http://libweb.uoregon.edu/guides/plagiarism/students/>

For all written assignments, you must cite your sources according to the guidelines given by the UO library and using the APA citation format. Please see the following websites:

- Citing sources: <http://libweb.uoregon.edu/guides/citing/>
- APA Style: <http://libweb.uoregon.edu/guides/citing/apa.html>

Students With Disabilities: If you need support or assistance because of a disability, you may be eligible for academic accommodations through Accessible Education Center (formerly Disability Services). For more information, call: (541) 346-1155, email: uoaec@uoregon.edu, or stop by Room 164 Oregon Hall.

TOAST MASTERS INTERNATIONAL: For anyone who would like more practice with public speaking, consider joining the University chapter of Toast Masters International. They meet on Tuesday evenings from 7-8:15 PM at the University of Oregon in the Lillis Business School Complex – Chiles 125 B. Drop-ins are welcome. See website for additional info: <http://oregonu.freetoasthost.net/>.

Class	Date	Day	Topic	Required Reading / Homework	Discussion Questions, In-Class Activities and Assignment Due Dates
1	Jan. 7	T	Syllabus review	Please read the syllabus in its entirety.	<ul style="list-style-type: none"> In class activity: classmate resource map In class activity: what matters most? In class activity: what makes a good discussion?
2	Jan 9	TH	Energy & climate change basics GHG inventory assignment intro	<ul style="list-style-type: none"> SEWTHA: Preface, Dedication, Chapters 1-5 Data collection checklist for GHG inventory assignment (on blackboard) 	<ul style="list-style-type: none"> In class activity: terminology review In class activity: review data collection checklist for first assignment
3	Jan. 14	T	Climate and energy intersection	<ul style="list-style-type: none"> US GHG Inventory 1990-2011: Executive Summary including all ES graphics. The Kaya Equation at Manicore (Please overlook the author's grammatical errors – he is French writing in English). SEWTHA: Chapters 6-8 Work on GHG Inventory Assignment 	<p>Be prepared to answer the following questions in class:</p> <ul style="list-style-type: none"> US GHG Inventory: (1) What are the largest sources of each GHG measured in this inventory. (2) What are significant <i>non-energy</i> sources of GHG emissions? (3) What are the factors that influence changes in CO₂ emissions from fossil fuel combustion? (4) What do US emissions trends look like since 1990? What about since 2000? Kaya Equation: How do the results from the US GHG inventory over time relate to the Kaya equation? SEWTHA: (1) What questions does this book attempt to answer? What is it <i>not</i> trying to answer? (2) What do the red and green stacks represent?
4	Jan. 16	TH	Carbon Calculations	<ul style="list-style-type: none"> The Climate Registry's General Reporting Protocol (GRP) v2.0, Chapters 5, 10, 12.2, 13 and 14 The Climate Registry's Default Emissions Factors – skim and be ready to use in assignment SEWTHA: Chapters 8-10 Work on GHG Inventory Assignment 	<ul style="list-style-type: none"> In class activity: GHG scopes definitions <p>Be prepared to answer the following questions in class:</p> <ul style="list-style-type: none"> What are the motivations of the GHG inventory boundaries required by the GRP (i.e., Scopes 1 & 2 are mandatory, Scope 3 is optional)? For what other purposes do they fall short? In class activity: GHG calculation practice In class activity (if time allows): Kaya Equation review
5	Jan 21	T	GHG Inventories	<ul style="list-style-type: none"> Portland Metro Local Government Operations GHG Inventory Portland Metro Regional GHG Inventory City of Auburn, WA GHG Inventory for 2008 (Work on GHG Inventory Assignment 	<p>Be prepared to answer the following questions in class:</p> <ul style="list-style-type: none"> For cities: how do local government operations inventories differ from community inventories? How can different boundaries impact results? How do different graphical representations of data results impact the readers' understanding?

Class	Date	Day	Topic	Required Reading / Homework	Discussion Questions, In-Class Activities and Assignment Due Dates
6	Jan. 23	TH	First half of course catch-up	<ul style="list-style-type: none"> SEWTHA: Chapters 11-17: pages 57-102 	Discussion questions to be determined. Bring any additional questions about your assignment.
7	Jan. 28	T	Peer Review of GHG Inventory	<ul style="list-style-type: none"> Finalize the first draft of your assignment 	Draft GHG Inventory assignment due for peer review In class activity: Review other assignments
8	Jan. 30	TH	Introduction to second assignment	<ul style="list-style-type: none"> Incorporate peer changes into assignment "Lifecycle Costing for Data Centers: <i>Determining the True Cost of Data Center Cooling</i>" (2003). 	Revised draft of GHG Inventory assignment due to Kelly by 10 AM by e-mail. <ul style="list-style-type: none"> In class activity: select topics and review data required for second assignment
9	Feb. 4	T	SEWTHA conclusions. Introduction to Reinventing Fire's new energy vision	<ul style="list-style-type: none"> SEWTHA: Chapters 18-32 pages 103-238 NREL Renewable Energy Assessment Executive Summary RF: Read About this Book, Preface, Foreword, and Chapter 1 	In class activity: NREL Renewable Energy Assessment Be prepared to answer the following questions in class: <ul style="list-style-type: none"> What are SEWTHA's main conclusions? How do SEWTHA's conclusions match up with the results of NREL's Renewable Energy Assessment? What other course materials might be needed to answer this question? What questions is RF trying to answer? What is the RF approach (3 components)? How does RF relate to SEWTHA?
10	Feb. 6	TH	Electricity Basics	<ul style="list-style-type: none"> Wikipedia entry for Capacity Factor RF: Chapter 5 – section called "Electricity-Related Terminology". 	Be prepared to answer the following questions in class: <ul style="list-style-type: none"> Be able to define baseload, intermittent, and dispatchable power What is capacity factor? How is it different from installed capacity? What are the units for each?
11	Feb. 11	T	Rethinking Electricity	<ul style="list-style-type: none"> RF: Chapter 5 (Electricity) Andy Grove article, "Our Electric Future" 	Be prepared to answer the following questions in class: <ul style="list-style-type: none"> Be able to describe what is happening in each electricity scenario. What are the primary ways the Transform scenario is different from the Maintain scenario?
12	Feb. 13	TH	Rethinking Consumption ("stuff")	<ul style="list-style-type: none"> EPA Systems vs. Sectors report pages 1-18 Skim GHG Inventory results for all Operation Climate Collaborative (OCC) participants on goodcompany.com/occ 	Kelly returns all graded GHG Inventory Assignments Be prepared to answer the following questions in class: <ul style="list-style-type: none"> What trends do you notice among the GHG inventory results of the OCC participants? Which is better – accounting for US GHGs using a systems approach or a sectors approach? Or is that the wrong question?

Class	Date	Day	Topic	Required Reading / Homework	Discussion Questions, In-Class Activities and Assignment Due Dates
13	Feb. 18	T	Rethinking Transportation	<ul style="list-style-type: none"> RF: Chapter 2 (Transportation) Understanding our Land Use and Transportation Choices, Phase I Findings, Jan 2012 	<ul style="list-style-type: none"> Guest speaker (unconfirmed): Mark Frohnmayer Founder of Archimoto (local electric car company) and Member of the Oregon Transportation Commission. Treat him with respect by asking tough questions.
14	Feb. 20	TH	Work groups for RF project	<p>LAB AND CLASS TIME SWITCH: Lab will be from 10-11:50 in Friendly; Class from 3:30-4:50 in Lawrence</p> <p>No additional readings. Catch up on all course materials and finish second assignment.</p>	<ul style="list-style-type: none"> In-class group work
15	Feb. 25	T	Rethinking Buildings	<ul style="list-style-type: none"> RF: Chapter 3 (Buildings) 	<p>Be prepared to answer the following questions in class:</p> <ul style="list-style-type: none"> What is right-timing? Who needs to be involved to make it successful?
16	Feb. 27	TH	Wrap up RF and SEWTHA	<ul style="list-style-type: none"> RF: Chapter 6 (Many Choices, One Future) Hot Air about Cheap Natural Gas, RMI 	<p>First draft Pro Forma Assignment due for peer review 10 AM</p> <p>Pro Forma Assignment due to Kelly by 10 AM</p> <ul style="list-style-type: none"> Discussion questions to be posted on Blackboard.
17	Mar. 4	T	Natural Gas and CHP	<ul style="list-style-type: none"> Future of Natural Gas, MIT Combined Heat and Power, Oakridge National Lab, through p. 25, plus p. 1 (appendix)" 	<p>Kelly returns all graded Pro Forma assignments</p> <ul style="list-style-type: none"> Practice session before presenting to clients. <p>Final presentation to clients</p>
18	Mar. 6	TH	Practice Presentation	<ul style="list-style-type: none"> Prepare your presentations 	
19	Mar. 11	T	Final presentations	<ul style="list-style-type: none"> In class presentations 	
20	Mar. 13	TH	Review for Final	<ul style="list-style-type: none"> Re-read all course materials to study for final exam. 	<p>All re-writes due 9 AM. Bring questions you have from the course.</p> <ul style="list-style-type: none"> Jeopardy!
FINAL EXAM	Mar. 17	**	No class – finals week	<p>Study for final exam.</p>	<p>Final exam due - Exam to be e-mailed Monday by 9 AM. Due by e-mail no later than 3 PM on Tuesday.</p>

Readings (to be completed BEFORE each class):

- Class 1: Syllabus
Class 2: SEWTHA
Class 3: Three readings:
• INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2011(April 2013): <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html>
• The Kaya Equation at Manicore: http://www.manicore.com/anglais/documentation_a/greenhouse/kaya_equation.html
• SEWTHA
- Class 4: Three readings:

- The Climate Registry General Reporting Protocol v2.0: http://www.theclimateregistry.org/downloads/2013/03/TCR_GRP_Version_2.0.pdf
 - The Climate Registry Default Emissions Factors: <http://www.theclimateregistry.org/resources/protocols/general-reporting-protocol/#jump1>
 - SEWTHA
- Class 5: Three readings:
- Greenhouse Gas Emissions Inventory Fiscal Year 2012-2013 For Metro Internal and business operations, December 2013 (uploaded to blackboard)
 - Portland Metro Regional Greenhouse Gas Inventory: http://library.oregonmetro.gov/files/regional_greenhouse_gas_inventory.pdf
 - Greenhouse Gas Inventory for the City of Auburn, Washington: http://www.auburnwa.gov/Assets/PD/AuburnWA/Docs/green_house.pdf
- Class 6: SEWTHA
- Class 7: N/A
- Class 8: "Lifecycle Costing for Data Centers: *Determining the True Cost of Data Center Cooling*" (2003): http://www.emersonnetworkpower.com/documents/en-us/brands/liebert/documents/white%20papers/lifecycle%20costing%20for%20data%20center_determining%20the%20true%20cost%20of%20data%20centers%20cooling.pdf
- Class 9: Two readings:
- National Renewable Energy Laboratory U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis, Executive Summary: <http://www.nrel.gov/docs/fy12osti/51946.pdf>
 - SEWTHA
- Class 10: Two readings:
- Capacity Factor, Wikipedia: http://en.wikipedia.org/wiki/Capacity_factor
 - RF Chapter 5 (Terminology)
- Class 11: Two readings:
- Andy Grove, Our Electric Future: <http://www.american.com/archive/2008/july-august-magazine-contents/our-electric-future>
 - RF Chapter 5
- Class 12: Two readings:
- EPA Opportunities to Reduce Greenhouse Gas Emissions through Materials and Land Management Practices (September 2009): http://www.epa.gov/oswer/docs/ghg_land_and_materials_management.pdf
 - Operation Climate Collaborative Results: <http://www.goodcompany.com/services/implementation/occ/past-participants/>
- Class 13: Two readings
- RF Chapter 2
 - Metro Climate Smart Communities Scenarios Project: Understanding Our Land Use and Transportation Choices (attached to blackboard)
- Class 14: Catch up on all previous readings
- Class 15: RF Chapter 3 (buildings)
- Class 16: Two readings:
- RF Chapter 6
 - Hot Air about Cheap Natural Gas, Rocky Mountain Institute: http://blog.rmi.org/blog_hot_air_about_cheap_natural_gas
- Class 17: Two readings:
- The Future of Natural Gas, MIT: <http://mitei.mit.edu/publications/reports-studies/future-natural-gas>
 - Combined Heat and Power, Oakridge National Lab: <http://info.ornl.gov/sites/publications/files/Pub13655.pdf>
- Class 18 and beyond: catch up on all course readings.

LAB SCHEDULE

This lab will use three main online resources that provide written and video instruction. The lab will focus on some key formulas and functions. These online resources have additional lessons that may be helpful to further improve your Excel skills. Each class will feature a set of lessons and tutorials that you are expected to review before class so that you can complete the in-class activities.

- Excel Exposure: <http://excelextposure.com/lesson-guide/>
- Excel Easy: <http://www.excel-easy.com/>
- GCF LearnFree.org: <http://www.gcflearnfree.org/excel2010>

Lab	Date	Day	Topic	Required Reading / Resources	Discussion Questions, In-Class Activities and Assignment Due Dates
1	Jan 9	TH	Introduction and Excel Basics - Syllabus, Expectations, Skills Test	The following online resources support in-class activities and may be referenced after class. <ul style="list-style-type: none"> • Excel Exposure: Beginner's Introduction to Excel • GCF LearnFree.org: 1. Getting Started with Excel, 2. Cell Basics, 3. Modifying Columns, Rows and Cells, 4. Formatting Cells, 6. Creating Simple Formulas, 9. Creating Complex Formulas 	In-class activity: Complete Skills Test in your own workbook. Skills to master: <ul style="list-style-type: none"> • Identify the components of a worksheet, basic cell formatting, simple formulas, fill handle, cut and paste, insert and delete, drag and drop, cell formatting, format painter, simple formulas, referencing cells • Worksheet organization
4	Jan. 16	TH	Formulas and Manipulating Data Sets	<ul style="list-style-type: none"> • Excel Exposure: Absolute & Relative Referencing • ExcelEasy: Functions: 3. Cell References • GCF LearnFree.org: 11. Sorting Data, 13. Filtering Data, 	In-class activity: Sort data set into usable data and create basic formulas Skills to master: <ul style="list-style-type: none"> • Sort, Filter, locking cells in formulas, count • Transparent calculations
6	Jan. 23	TH	Creating and Editing Charts	<ul style="list-style-type: none"> • GCF LearnFree.org: 17. Working with Charts • ExcelEasy: Data Analysis: 4. Charts, in "Learn More, It's Easy" sidebar on charts page: Data Series, Axes 	In-Class Activity: Help finalizing GHG inventory assignment (bring draft inventory to work on in class) Skills to Master: <ul style="list-style-type: none"> • Create charts, edit axes, add labels, add text boxes, edit colors
8	Jan. 30	TH	Financial Projections	<ul style="list-style-type: none"> • Liebert Corporation, "Lifecycle Costing for Data Centers: <i>Determining the True Cost of Data Center Cooling</i>" (2003). http://www.emersonnetworkpower.com/documents/en-us/brands/liebert/documents/white%20papers/lifecycle%20costing%20for%20data%20center_determining%20the%20true%20cost%20of%20data%20centers%20cooling.pdf 	In-class activity: Set up simple pro forma outline Skills to master: <ul style="list-style-type: none"> • Setting up a pro forma, NPV, first cost, operating costs, life-cycle cost / total cost of ownership

Lab	Date	Day	Topic	Required Reading / Resources	Discussion Questions, In-Class Activities and Assignment Due Dates
10	Feb. 6	TH	Setting up Working Tools	<ul style="list-style-type: none"> • GCF LearnFree.org: 16. Using Templates 	<p>In-class activity: Create a unit conversion worksheet with constants and variables</p> <p>Skills to master: Laying out constants and variables, recording sources and notes, formatting for tool interface</p> <p>In-class activity: Create summary tab</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Referencing cells on other tabs • Creating a summary tab - collecting and organizing the high-level information <p>In-class activity: Help finalizing pro forma assignment</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Graphics for financial data
12	Feb. 13	TH	Summarizing Findings	No new readings this week	
14	Feb. 20	TH	Pro Formas and Financial Graphics	<p>Review chart and graphic resources from previous session:</p> <ul style="list-style-type: none"> • GCF LearnFree.org: 17. Working with Charts • ExcelEasy: Data Analysis: 4. Charts, in "Learn More, It's Easy" sidebar on charts page: Data Series, Axes <p>LAB AND CLASS TIME SWITCH: lab will be from 10-11:50 in Friendly; Class from 3:30-4:50 in Lawrence</p>	<p>In-class activity: Help finalizing pro forma assignment</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Graphics for financial data
16	Feb. 27	TH	Organizing Data Sets	<ul style="list-style-type: none"> • ExcelEasy: Functions: 5. Text In "Learn More, It's Easy" sidebar on text page: Text to Columns, Basics: 7. Data Validation • Excel Exposure: Conditional Formatting, Data Validation 	<p>In-class activity: Organize data set for ease of use</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Text to columns, transposing data, creating a drop down list, conditional formatting,
18	Mar. 6	TH	Viewing Big Spreadsheets – Freeze and Split	<ul style="list-style-type: none"> • GCF LearnFree.org: 7. Worksheet Basics • Excel Exposure: Basic Formatting Techniques 	<p>In-class activity: Adjust data spreadsheet for easy viewing and use as a tool</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Show/hide, freeze pane, split window
20	Mar. 13	TH	Viewing Big Spreadsheets - Outline	<ul style="list-style-type: none"> • GCF LearnFree.org: 12. Outlining Data 	<p>In-class activity: Format data spreadsheet using outline</p> <p>Skills to master:</p> <ul style="list-style-type: none"> • Outline using the subtotal function