

Central New Mexico Community College Presents:

Water in the Desert

Lecture and Event Series | Free and Open to the public!

* for a visitor parking information, see Appendix A

*The CNM Sustainability Website will be updated by 09/30/2016

*Students seeking credit, please read additional notes.



Week One: Water Quantity and Supply

October 3-7, 2016

Lecture: Can You Swim?

Don Helfrich, CNM geography faculty, will speak about water quantity from a watershed perspective that is specific to the American Southwest. His presentation will touch on the varying uses of water resources and how they are managed under both the Doctrine of Prior Appropriation and the Endangered Species Act. During this presentation, a short film will show:

National Geographic Live! Chasing Rivers, Part 1: The Colorado

Tuesday, October 4, 2:00 pm. Montoya campus, H building, room 128

Wednesday, October 5, 3:00 pm. Main Campus, SRC 204 (Richard Barr Boardroom)

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Lecture: Albuquerque-Bernalillo County Water Utility Authority 100 Year Water Supply Plan

John Stomp, Chief Operating Engineer at Albuquerque Bernalillo County Water Utility Authority (ABCWUA), will discuss the ABCWUA's municipal water plan for the next 100 years. Topics to be discussed are climate change, population growth and several other factors that affect citizens and the environment.

Thursday, October 6, 4:00 pm, Main Campus, SRC 204 (Richard Barr Boardroom)

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Activity: Alameda Diversion

Steve Glass, CNM biology faculty, will lead a field trip at the San Juan-Chama Diversion at Alameda Open Space. Here you will learn about how and why the Grande receives water from the Colorado River through a series of tributaries and diversions.

Directions: Google "Alameda Open Space Parking"

Tuesday, October 4, 8:30 am-10:00 am

* Just for fun and learning! Or as directed by instructor. Students, if attending for credit, make sure you speak to your instructor if they require additional assignments. If attending for CNM Sustainability Certificate, contact Molly: mblumhoefer@cnm.edu

Students must find their own transportation to the site.

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Activity: Colorado River Documentary Project

Asa Stone, CNM psychology faculty, offers an online activity based on a documentary on the Colorado River called Remains of a River. You will a) watch a 47-minute documentary of people who hiked, paddled and slogged their way down the Green and Colorado Rivers to the sea and b) take an action to share what you learned with others.

This online activity will become available on October 5.

* Just for fun and learning! Or as directed by instructor. Students, if completing for CNM Sustainability Certificate, send the link to your infographic (worth 2 hours) or your outreach tweet (worth 1 hour) to Molly: mblumhoefer@cnm.edu.



Week Two: Water Conservation

October 10-14, 2016

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Lecture: Biomimicry in the Desert

Kris Callori, Architect, LEED Fellow and Biomimicry Specialist will present a design thinking methodology to identify strategies for water conservation in the desert. Through the lens of biomimicry, students will learn how to read our local landscape, identify species adaptations, and elicit design ideas inspired by nature. This is great for individuals with general interest in this topic, as well as for students enrolled in Architecture, Engineering, Sustainability, Environmental Planning and more!

Monday, October 10, 10:00-11:00 am. Main campus, SRC 204 (Richard Barr Boardroom)

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Lecture: Water Conservation through Irrigation Efficiency

Leslie Kryder, local water conservation expert and business owner, will speak about why OUTDOOR water conservation is so important and will share ideas on how to improve irrigation efficiency. Come and learn how to be a Water Miser!

Monday, October 10, 2:00 pm. Main Campus, SRC 204 (Richard Barr Boardroom)

Monday, October 10, 5:00 pm, Montoya Campus, H building, room 126



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Activity: CNM Garden-Bed Irrigation demo

Immediately after Leslie Kryder's presentation, Gregory Dugay, CNM Student employee, will walk interested attendees to the CNM garden beds, nearby, for a "how to" with a real drip irrigation system. He will spend approximately 30 minutes showing and telling on components, cost and how to irrigate a home garden efficiently.

Monday, October 10, 3:30 pm. Main Campus (between SSC and MS buildings)

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Activity: Identify Climate Appropriate Plants on Campus

Inventory CNM's plants for future signage to be displayed on campus.

* Just for fun and learning! Or as per directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

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Lecture: Backyard Chickens!

Sandra Rourke, CHSS English faculty and raiser of chickens presents a workshop on Raising Backyard Chickens. She will shed light on how our food systems and food choices tie into water conservation.

Wednesday, October 12, 12:00 pm-1:00 pm. Montoya Campus, H Building: 126

Film: Taste the Waste

Stay after the lecture for a film!

Wednesday, October 12, 1:00 pm- 3:00 pm. Montoya Campus, H Building: 126

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Workshop: Home Composting Basics

John Zarola, a Master Composter with NMSU Agriculture Extension presents a workshop on Home Composting Basics. Have you always been interested? Come to learn everything you need to know!

Thursday, October 13, 1:00 pm -2:30 pm. Montoya Campus, H Building: 126

* Just for fun and learning! Or as per directed by instructor. Students, if attending for credit, make sure you speak to your instructor if they require additional assignments. If attending for CNM Sustainability Certificate, contact Molly: mblumhoefer@cnm.edu

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Workshop: Amending Desert Garden Soil

John Zarola, a Master Composter with NMSU Agriculture Extension presents a workshop on Amending Desert Garden Soil.

Thursday, October 13, 2:45 pm -4:30 pm. Montoya Campus, H Building: 126

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Activity: Water Footprint Calculator

How much water do you consume by your food choices and other everyday choices?

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Please see Appendix B for instructions.



Week Three: Water Quality

October 17-21

Lecture: Water Treatment Processes

Kerry Howe, Professor of Environmental Engineering at UNM, will discuss the sources of Albuquerque's municipal water supply—groundwater and the Rio Grande—and the treatment processes that are used to make this water safe to drink. He will also discuss the additional processes that would be necessary to turn our wastewater into drinking water.

Thursday, Oct 20 at 3 PM, Main Campus, MS 201

Activity: Cleaning Water with an Advanced Treatment Process: Reverse Osmosis

Kerry Howe will follow his lecture with a 30-minute demonstration on how reverse osmosis removes contaminants from water.

Thursday, Oct 20 at 4 PM, following above lecture (MS 201)

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Lecture: How Forest Management helps to Protect our Water Quality

Sarah Hurteau, Urban Conservation Director for The Nature Conservancy New Mexico, will discuss The Rio Grande Water Fund, a broad partnership that promotes forest treatments in New Mexico and Colorado to reduce high-severity wildfire and its effects on our water quality.

Friday, October 21, 10:00 am. Main Campus, Building SRC, room 204 (Richard Barr Boardroom)

Activity: Trip to the Forest to observe management techniques.

TBA (may be specific to a class field trip, please check the Sustainability Website for updates prior to this week <https://www.cnm.edu/about/sustainability/water-in-the-desert-project>)

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Activity: Urban Stormwater Management

Campus stormwater tour lead by Molly Blumhoefer, CNM Sustainability Project Manager and Steve Glass, CNM biology faculty. While Placing storm drain markers on main campus, Steve and Molly will discuss how stormwater is managed in the Albuquerque Middle Rio Grande and why this is important to the quality of our water. This will take place outdoors on main campus.

Wednesday, October 19, 3:00 pm- 4:00 pm. Main Campus, Meeting point: Main Campus, Building: SRC, Breezeway (outdoor corridor).

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mblumhoefer@cnm.edu

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Activity: Map it and Film it!

Learn how stormwater drains from CNM to the Rio Grande! Help create an educational documentary for YouTube.

Please see Appendix B for instructions.

* Just for fun and learning! Or as per directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

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Activity: ABCWUA Online Tour

Learn all about our local water utility system!

Please see Appendix B for instructions.

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Week Four: Water and Society

October 24-29

Lecture: Bottled Water vs Tap Water

Molly Blumhoefer, CNM faculty and Sustainability Project Manager, with Lars Panaro of Food and Water Watch, will discuss the sources of bottled water versus the sources of tap water over quality, environmental impacts as well as the socioeconomic risks of privatization.

Monday, October 24, 4:30 pm. Main campus, SRC building, room 204 (Richard Barr Boardroom)

Wednesday, October 26, 4:30 pm. Montoya Campus, H building, room 126

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Activity: Pledge!

Immediately following the above lecture, Ines Ware, CNM student, will be campaigning for the Food and Water Watch Take Back the Tap initiative. If you would like to Pledge, but cannot make it to the event, please contact mblumhoefer@cnm.edu

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Activity: Map the Hydration Stations on YOUR campus!

Just for fun and learning! Or as directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

Please see Appendix B for instructions.

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Lecture: New Mexico Acequia Culture

TBA (please check the Sustainability Website for updates prior to this week)
<https://www.cnm.edu/about/sustainability/water-in-the-desert-project>

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Activity: Alameda and Matthew Meadows Drain Tours

Explore the acequias of Albuquerque's Near North Valley to observe how these intricate waterways feed into home gardens and to consider the environmental impacts of these systems. Volunteers will walk the paths located along the Alameda Drain while cleaning up trash and pet waste that might feed into acequia systems and undermine water quality.

Meet at Matthew Meadows park, located on Matthew just west of 12th Street.

Friday, October 28, 9:30 am

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Lecture: UNM-EPA Campus Rainworks Challenge

Adrienne Martinez, EI, Civil Engineering Research Engineer is leading the UNM-EPA Campus Rainworks Challenge Project at the University of New Mexico. The University of New Mexico Civil Engineering Department has assembled a talented group of students to enter an exciting EPA Campus Rainworks Challenge (CRS). The interdisciplinary collection of students come from departments including civil engineering, landscape architecture, community and regional planning, water resources, and communications. The main goals of the CRC Team will be to include green infrastructure strategies such as LID practices, reduce the volume of stormwater runoff from campus, improve pollutant capture and filtering, incorporate climate resiliency, and to work closely with UNM Facilities in the hopes of integrating the final design into the UNM Campus landscape.

*This lecture is great for Engineers, Architects, Planning Students, Environmental Science Students, Sustainability Students and anyone interested in large-scale stormwater management!

Tuesday, October 25, 4:30 pm. Main Campus, SRC Building, room 204 (Richard Barr Boardroom)

Thursday, October 27, 4:30 pm Montoya Campus, H Building, room 126

<https://www.cnm.edu/about/sustainability/water-in-the-desert-project>

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Activity: Let's Calculate CNM's Stormwater Drainage

Just for fun and learning! Or as directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

Please see Appendix B for instructions.

APPENDIX A

PARKING SERVICES

No parking permit is required at CNM campuses after 4:30 p.m. and all day Friday thru Sunday. At ALL other times a PARKING PERMIT IS REQUIRED.

For a temporary parking permit, please go online to obtain an “E-Permit”.

<https://www.cnm.edu/depts/parking/visitor-parking>

This option allows you to get a permit for 5 consecutive days, or 5 separate days. The system will not allow you to extend beyond 5 reservations. If you would like to come to more than 5 days of lectures, you will need special authorization through Molly Blumhoefer and Parking Services. Please contact Molly at

mblumhoefer@cnm.edu

Meters: Main campus has parking meters located in the lower SSC, TC, Central, JS, and PPD lots. Meters are limited to a three-hour maximum. Meters are enforced Monday thru Friday from 6:30 a.m. to 4:30 p.m. Metered spaces are free after 4:30 p.m. Monday thru Friday and all day Saturday and Sunday.

APPENDIX B

ACTIVITY INSTRUCTIONS



Water Footprint Calculator

RE: Week Two: Water Conservation

Go to the link below to calculate your water footprint. Take a screen shot of either the final score page or page of the video you are prompted to watch after you calculate your footprint. If for class credit, send this information, electronically, to your instructor and any other additional assignments that instructor requires. If for individual credit for a CNM Sustainability Certificate, send to mblumhoefer@cnm.edu, stating who you are and that you are interested in the certificate.

Water Footprint Calculator

<http://environment.nationalgeographic.com/environment/freshwater/change-the-course/water-footprint-calculator/>

* Just for fun and learning! Or as per directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

Map it and Film it!

RE: Week three: Water Quality

Go to the AMAFCA website to find and analyze drainage maps that show how water travels from stormdrains of Albuquerque to the Rio Grande. Once you have familiarized yourself with the maps, use one of them to trace out how water travels from CNM drainage inlets to the Rio Grande. To do this, you may print out a hard copy to trace by hand, or you may copy and paste the map into a separate document, using applicable tools. ***GIS students may have separate mapping instructions as provided by instructor.**

After creating your map, develop a proposal to go with your map, that could be used to instruct a film crew to follow this drainage via automobile. In addition to the streets that they would follow, make sure to mark down important drains, conveyance channels, buildings, structures and outfalls and explain their importance. It may help to take the journey on your own first! If inclined, make your own YouTube video documenting the process and send link to mblumhoefer@cnm.edu. If enough films are turned in, a competition will be held and the winning film will be selected to display on CNM's Sustainability Website.

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ABCWUA online Water Tour

RE: Week three: Water Quality

Go to the ABCWUA education website at http://www.abcwua.org/education/el_WSD_2.html.

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Follow the instructions to the right of the screen.

*Just for fun and learning! Or as per directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

Map the Hydration Stations on YOUR Campus!

RE: Week Four: Water and Society

Retrieve and download the CNM online map specific to your campus from

<https://www.cnm.edu/maps-and-directory>

***GIS students may have separate mapping instructions as provided by instructor.**

Walk your campus to find all existing hydration stations and make a map. Keep in mind that your map will be entered into a competition. The winning map will be uploaded to CNM's Sustainability website. Your map should be easy to read for anyone visiting campus, including students, faculty and staff. You may work directly from the campus map you have downloaded, or you may create an entirely new map!

*Just for fun and learning! Or as per directed by instructor for class credit. For individual credit towards CNM Sustainability Certificate, contact Molly Blumhoefer mblumhoefer@cnm.edu

Activity: CNM Stormwater Drainage

For the RPM Building on Main Campus, you will calculate the Stormwater Runoff for the RPM building (main campus) catchment area.

- 1) Print out a few campus maps on full sheets of paper. Make sure to crop them to show mostly RMP and surrounding area. You may need a few maps while developing your own methodology. It may be a good idea to use Google Maps (bottom left), since this will give you a better idea of the building and landscape details as you analyze the site.



- 2) Go to the Building!!! First, study the roof edges to find storm conveyance drains (gutters). Mark them on your building map.
- 3) Next look to find storm drainage inlets nearby and look at how the land slopes towards or away from those inlets. Pay careful attention to the pollutants you see on the ground (cigarette butts, plastics, oil, soaps, animal waste, etc) and take inventory on a separate

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sheet of paper. The inventory will be important for your reflection after the completion of the project.



- 4) On the same campus map, delineate into what drain/s you **think** water from the roof and surrounding area, flows. Make sure to study the parking lot above RPM and adjacent University Avenue. Please use precaution and do not step into the street.

If you cannot find drains, on the same map, identify the lowest elevations on the landscape around the building. If there are no drains in the vicinity, what happens to the runoff? Take notes on your assumptions to these questions. They will be important for your reflection.

- 5) Walk away from the building, in every direction, and stop when you think water no longer drains into the same direction as the water from the RMP roof. This generally happens because the land starts to slope away from the building and the water flows elsewhere. The remaining area around the building, where all the water flows to the same place, is the drainage (catchment) area. Draw a line around it on your map. Don't worry, since you have no special tools to determine slope, and this is just an exercise to raise awareness, this does not have to be 100% accurate.
- 6) You are done with the catchment tour. Now, go watch the short film on the EPA's water research website
<https://www.epa.gov/water-research/national-stormwater-calculator>
- 7) Download the calculator beneath the film to determine how much water runoff is produced from the site.

IF you have troubles with this calculator, this one will also work.

<http://www.calctool.org/CALC/other/default/rainfall>

If the calculator requires rain amount, choose the day in Albuquerque (2016) that had the most precipitation (rainfall). Make sure to convert if needed.

<https://www.weather.gov/climate/index.php?wfo=abq>

If you need roof area, please email Molly, mblumhoefer@cnm.edu

*If you need any assistance at all, ask Molly.

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*Service Learning and Certificate Students: Your calculations do not need to be precise. You are not graded on accuracy, but rather on your overall effort and reflections.

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