



Mathematics Across the Community College Curriculum

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MAC in Anthropology
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MAC supports faculty of all disciplines in creating curriculum that enhances the mathematical or quantitative literacy dimensions in their courses.

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As a result, students in anthropology gain an awareness of the cross-cultural significance of math, deepen their understanding of quantitative skills through applied applications, and explore the importance of math in a variety of careers in cultural and natural resource management.



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MAC Summer & Winter Institutes

- Summer Institutes in Leavenworth, WA
- Winter Institutes in North Bend, WA & Miami, FL
- I have attended several institutes, as a team with faculty from
 - Math
 - Biology
 - Occupational Safety & Health



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MAC in Anthropology:

λ. The MAC projects I have been involved in have included:

- Ethnomathematical assignments & worksheets
- Quantitative laboratory exercises & activities
- Analysis & interpretation of demographic data
- Learning Communities - with Biology, English & Diversity Studies
- Quantitative applications in service-learning assignments
- Environmental career explorations with an emphasis on the use of math

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Example: LEAF School

λ. Learn-and-serve Environmental Anthropology (LEAF) Field School

λ. Employs service-learning as a primary method of instruction so that students can participate earn 5 - 15 academic credits in Human Ecology while participating in a part-time AmeriCorps program



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Service & Learning Objectives



- λ LEAF School partners with tribes, government and non-profit agencies to help make fishing, farming and forestry more sustainable
- λ Community partners help plan, design & implement service-learning projects that advance institutional objectives while providing a structured learning experience for the students

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Example: Stillaguamish Tribe

- λ In partnership with the Stillaguamish Tribe students have helped:
 - Measure Coho escapement in Stillaguamish watershed
 - Capture, measure & weigh Chinook for broodstocking
- λ Students study history of fishing rights struggles and their quantitative resolution through the Boldt & Rafeedie Decisions



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Example: Washington Department of Fish & Wildlife



- λ In partnership with WDFW students have helped survey populations, settlement, and growth patterns of juvenile Dungeness crab and spot prawn
- λ Data collected by students has already helped the county and state set higher standards for the protection of preferred habitat types

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Example: Stilly-Snohomish Fisheries Enhancement Task Force

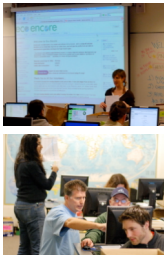
- λ In partnership with SSFETF students monitor and assess native vegetation in riparian restoration projects, survey and graph stream profiles before and after installation of large woody debris



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Example: Eco Encore Books & Media Drive



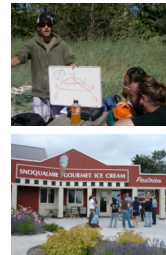
- λ LEAF School students collect books and media for reuse, help Eco Encore assess their value & then sell them online or on campus to generate funds for environmental non-profits and student scholarships
- λ Up to 7 other classes per quarter participate in this project

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Example: Field Trips

- λ LEAF School includes a variety of field trips exploring ecosystem services, environmental careers & sustainable businesses
 - Urban Surf
 - Pentec Environmental
 - Standard Biodiesel
 - Snoqualmie Gourmet Ice Cream
 - West Point Waste Treatment Plant



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Assessment: Survey of students in 2007 LEAF School

- 100% of the students reported "the community work I did has made a positive impact on the community."
- 90% reported "my skills in addressing community needs have improved."
- 90% reported "I feel I can make a difference in my local community."
- 80% reported "my knowledge of various careers and jobs has increased."
- "The service that I have performed has given me skills that I will be able to use in future careers."
- "My skill development has improved by having on hands experience in doing restoration projects."
- "I have discovered through participating in the LEAF school that it is the type of career that I want. I want to get into the environmental field and this class was the best decision that I could have made."

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Assessment: Survey of students in 2007 LEAF School

- 100% reported making gains in "understanding the relationship among [mathematical] concepts."
- 100% reported making gains in "ability to think through a problem."
- 100% reported making gains in "ability to solve problems."
- 80% reported making gains in "ability to communicate mathematical ideas."
- 80% reported making gains in "confidence in your ability to do mathematics."
- 90% reported making gains in "feeling comfortable with complex ideas."
- 50% reported making gains in "enthusiasm for mathematics."

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Assessment: Survey of students in 2007 LEAF School

- 90% reported some understanding of "latitude and longitude."
- 100% reported some understanding of "how to interpret graphs."
- 90% reported some understanding of "how to distinguish velocity from flow."
- 100% reported some understanding of "how to set up and use a transect."
- 90% reported some understanding of "how to use calipers and tape measures."
- 100% reported some understanding of "how to interpret maps."
- 100% reported some understanding of "the value and utility of sampling."
- 100% reported some understanding of "how and why treaty tribes and state government allocate salmon and shellfish."

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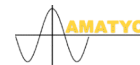


has been supported by:

- The NSF supported many of the MAC workshops I have attended.



- DE supported the first year of MAC³.



- AMATYC is the lead institution for MAC³.



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MAC³ Directors at EdCC:

On our campus (EdCC), the primary work on MAC was initiated and supported by Deann and Rebecca.

- Deann Leoni - Co-PI - Edmonds Community College (EdCC)
- Rebecca Hartzler - Co-PI - Seattle Central Community College (formerly at EdCC)

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Thanks for the NSF support!

For more information:

Web site: www.mac3.amatyc.org

The Electronic Bookshelf:

math.dartmouth.edu/~mqed

LEAF School

www.edcc.edu/servicelearning

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