

**Water Resources Management (WRM) – Water Quality Emphasis  
 Sample Program of Study (POS) Form**

**\*\*\*First year MESM students use the POS Form to plan a program of study at Bren. Second year MESM students will revise the POS Form AND complete a GRAD CHECK FORM prior to meeting with your specialization advisor.\*\*\***

**NAME:** \_\_\_\_\_ **PERM # (required) :** \_\_\_\_\_

**SPECIALIZATION(S):** \_\_\_\_\_

- A **MINIMUM of 80 units** of completed (approved) coursework is required.
- Students may count a **MAXIMUM of 4 units** of ESM 596 towards their POS unit count.
- Students may count a **MAXIMUM of 8 units** of UPPER DIVISION undergraduate coursework as approved their advisor(s) towards their POS unit count. Note: LOWER DIVISION coursework can never be counted.
- Students may count a **MAXIMUM of 4 units** of 400-level coursework (in addition to 401ABC or 402ABC) towards their POS unit count.
- If a CORE course is waived, the units need to be made up with other elective courses.

**CORE REQUIREMENTS:**

<b>CORE COURSES</b>	<b>QTR/YR COMPLETED</b> Write waived if waiver approved and do not count the units	<b>UNITS</b>	<b>GRADE</b>
ESM 201 Ecol. of Managed Ecosystems		4	
ESM 202 Environmental Biogeochemistry		4	
ESM 203 Earth Systems Science		4	
ESM 204 Econ. Environmental Management		4	
ESM 206AB Stats & Data Analysis		4	
ESM 207 Environmental Law & Policy		4	
ESM 210 Business & the Environment		4	
ESM 241 Environmental Politics & Policy		2	
ESM 251 Intro to Env. Policy Analysis		2	

**GROUP PROJECT OR ECO-ENTREPRENEURSHIP PROJECT (CORE REQUIREMENT)**

<b>GROUP PROJECT</b>	<b>UNITS</b>	<b>GRADE</b>
ESM 401A (Spring of 1 <sup>st</sup> year)	4	
ESM 401B (Fall of 2 <sup>nd</sup> year)	4	
ESM 401C (Winter of 2 <sup>nd</sup> year)	4	

**OR**

<b>ECO-ENTREPRENEURSHIP PROJECT</b>	<b>UNITS</b>	<b>GRADE</b>
ESM 402A (Spring of 1 <sup>st</sup> year)	4	
ESM 402B (Fall of 2 <sup>nd</sup> year)	4	
ESM 402C (Winter of 2 <sup>nd</sup> year)	4	

<b>Total CORE Units</b>	44 – waived units =	
-------------------------	---------------------	--

**POS ELECTIVE UNITS:**

- Minimum POS elective units = 80 Units - # CORE Units.
- Unless you have waived a course this will be 80 - 44 = 36 minimum POS elective units.
- POS elective units consist of coursework that builds depth in the student's specified area of specialization.
- Students may take *up to 8 units* of POS elective coursework as P/NP (undergraduate course numbers 100-199) or S/U (grad course numbers 200 and above)
- Students may wish to take additional elective units that are not included in the POS. All of these units may be taken S/U or P/NP.

The POS is designed specifically for the chosen specialization **and** the student's particular background and goals. An acceptable POS includes courses that build depth in a particular area of specialization and also develop technical skills. MESM students are encouraged to identify different areas they wish to gain more knowledge and skill.

**POS Elective COURSES: Please list all courses you are considering taking.**

Please visit <http://bren.ucsb.edu/academics/MESM.html#specializations> and click on the accompanying link to view course work recommended for your specialization.

Please visit <http://bren.ucsb.edu/services/student/index.html> to see sample POS Forms for each specialization.

**ESSENTIAL COURSES – RECOMMENDED TO TAKE AT LEAST TWO OF THESE CLASSES**

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 222	Fate and Transport of Pollutants		4	
ESM 223	Management of Soil and Groundwater Quality		4	
ESM 224	Sustainable Watershed Quality Management		4	
ESM 235	Watershed Analysis		4	

*Add rows as needed*

<b>Total Section 1 ELECTIVE Units</b>	8-16
---------------------------------------	------

**ECONOMICS & POLICY: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA**

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 225	Water Policy		4	
ESM 242	Natural Resources Economics and Policy		4	
ESM 243	Environmental Policy Analysis		4	
ESM 245	Cost Benefit Analysis		4	

*Add rows as needed*

<b>Total Section 2 ELECTIVE Units</b>	4-12
---------------------------------------	------

**TECHNICAL SKILLS: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA**

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 261	Management of Scientific Data		4	
ESM 263	GIS		4	
ESM 266	Remote Sensing		4	

*Add rows as needed*

<b>Total Section 3 ELECTIVE Units</b>	4-12
---------------------------------------	------

**ADDITIONAL SCIENTIFIC DEPTH**

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 214	Bioremediation		4	
ESM 219	Environmental Microbiology		4	
ESM 233	River Restoration		2	
Earth 173	Groundwater Hydrology		4	

*Add rows as needed*

<b>Total Section 4 ELECTIVE Units</b>	4-10
---------------------------------------	------

**ADDITIONAL SUPPORTING ELECTIVES**

<b>COURSE #</b>	<b>COURSE TITLE</b>	<b>QTR/YR COMPLETED</b>	<b>UNITS</b>	<b>GRADE</b>
ESM 282	Industrial Ecology		4	
ESM 273	Life Cycle Assessment		4	

*Add rows as needed*

<b>Total Section 5 ELECTIVE Units</b>	4-8
---------------------------------------	-----

**400-LEVEL ELECTIVES: A MAXIMUM OF 4 UNITS MAY COUNT TOWARD 80-UNIT MINIMUM**

<b>COURSE #</b>	<b>COURSE TITLE</b>	<b>QTR/YR COMPLETED</b>	<b>UNITS</b>	<b>GRADE</b>
ESM 437	Writing for Environmental Professionals		2	
ESM 430	Law Workshop		0.5	

*Add rows as needed*

<b>Total Section 6 ELECTIVE Units</b>	2.5
---------------------------------------	-----

**ADD ADDITIONAL SECTIONS ABOVE AS APPROPRIATE FOR YOUR POS**

<b>Total POS ELECTIVE Units</b>	<i>Minimum of 36</i>
---------------------------------	----------------------

**TOTAL (CORE + POS ELECTIVE) UNITS =** \_\_\_\_\_  
*(must be at least 80)*

## ECO-ENTREPRENEURSHIP FOCUS (OPTIONAL)

Students pursuing an eco-entrepreneurship (Eco-E) focus, must complete 10 units of Eco-E primary courses and at least 4 units of Eco-E elective courses. Students pursuing Eco-E Projects should record ESM 402A under both Core Requirements and Eco-E Focus. Students should record Eco-E primary courses and electives in Sections 1-3, etc., of your POS elective courses if the courses also will be counted toward your specialization.

### ECO-E FOCUS: PRIMARY COURSES

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 256A	Intro to Entrepreneurship and New Venture Creation		2	
ESM 256B	New Venture Opportunity Analysis		4	
ESM 402A	Eco-E Project: New Venture Formation		4	

<b>Eco-E PRIMARY COURSE Units</b>	10
-----------------------------------	----

### ECO-E FOCUS: ELECTIVES (TAKE AT LEAST 4 UNITS)

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 230	Strategic Planning for Non-Profit Ventures		4	
ESM 269	Survey Research Design and Evaluation		2	
ESM 285	Environmental Markets		4	
ENGR 240	Business Strategy and Leadership Skills*		4	
ENGR 241	Managing for Innovation*		4	
ENGR 244	Entrepreneurial Marketing*		2	
ENGR 246	New Venture Finance*		2	
ENGR 250	Managing Operations		2	
ENGR 251	Legal and IP Issues in New Ventures		2	
ENGR 255	New Product Development*		4	

\*Several electives for the Eco-E focus (noted with an asterisk above) also are part of the curriculum for the Graduate Program in Management Practice (GPMP), a UC-recognized certificate offered by the Technology Management Program (TMP).

<b>Eco-E ELECTIVE Units</b> At least 4 units	
-------------------------------------------------	--

**TOTAL ECO-E FOCUS UNITS  
(PRIMARY COURSE + ELECTIVE) =**

\_\_\_\_\_ (must be at least 14)

### FACULTY SIGNATURES (Required):

Faculty specialization advisor(s) must review and sign the completed POS Form prior to submittal to the Student Affairs Office.

**Reviewed and approved by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
(Signature of Faculty Advisor for Specialization)

**Reviewed and approved by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
(2nd Faculty Advisor Signature for Double Specialization, if applicable)