

**Pollution Prevention & Remediation (PPR)
 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:

CORE COURSES	QTR/YR COMPLETED Write waived if waiver approved and do not count the units	UNITS	GRADE
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)

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

OR

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

Total CORE Units	44 – waived units =	
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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.

POLLUTION SCIENCE – RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 219	Microbial Processes in the Environment		4	
Chem 123	Fundamentals of Env. Chemistry		4	
Geog 114A	Soil Science & Laboratory		4	

Add rows as needed

Total Section 1 ELECTIVE Units	4-12
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TRANSPORT OF POLLUTANTS: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 222	Fate and Transport of Pollutants		4	
Ch E 120C	Transport Processes		4	
Geol 169	Tracer Hydrology		4	
Geog 246	Earth Systems Science: Hydrologic Modeling		4	
Math 130	Intro to Mathematical Modeling		4	

Add rows as needed

Total Section 2 ELECTIVE Units	4-12
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DISTRIBUTION OF POLLUTANTS: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 263	GIS		4	
Geog 276	Geographical Time Series Analysis		4	
Geog 277	Spatial Environmental Modeling		4	
Geog 278	Practice of Geostatistical Modeling		4	

Add rows as needed

Total Section 3 ELECTIVE Units	4-12
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CONSEQUENCES OF POLLUTION: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 299	Advanced Topics: Principles of Nanotoxicology		2	
ENVST 120	Toxics in the Environment		4	

Add rows as needed

Total Section 4 ELECTIVE Units	2-6
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POLLUTION REMEDIATION: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 214	Bioremediation		4	
ESM 223	Management of Soil and Ground Water Quality		4	
ESM 224	Sustainable Watershed Management		4	

Add rows as needed

Total Section 5 ELECTIVE Units	4-12
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POLLUTION PREVENTION: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 272	Energy and Resource Productivity		4	
ESM 273	Life Cycle Assessment		4	
ESM 282	Industrial Ecology		4	
Ch E 212	Risk Assessment and Management		4	

Add rows as needed

Total Section 6 ELECTIVE Units	2-10
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ECONOMICS AND POLICY OF POLLUTION MANAGEMENT: RECOMMENDED TO TAKE AT LEAST ONE COURSE IN THIS AREA

COURSE #	COURSE TITLE	QTR/YR COMPLETED	UNITS	GRADE
ESM 243	Environmental Policy Analysis		4	
ESM 245	Cost Benefit Analysis		4	
ESM 271	Carbon Footprints & Carbon Accounting		2	
ESM 281	Corporate Environmental Management		4	
ESM 288	Energy, Technology, and the Environment		4	

Add rows as needed

Total Section 7 ELECTIVE Units	2-12
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ADD ADDITIONAL SECTIONS ABOVE AS APPROPRIATE FOR YOUR POS

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

Eco-E PRIMARY COURSE Units	10
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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).

Eco-E ELECTIVE Units At least 4 units	
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**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)