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**MEMORANDUM**

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**ATTENTION** Senate  
**FROM** Jeff Derksen,  
Chair of Senate Graduate Studies  
Committee (SGSC)  
**RE:** Course Changes

**DATE** June 15, 2022



**For information:**

Acting under delegated authority at its meeting of June 14, 2022, SGSC approved the following course changes, effective **Spring 2023**:

**Faculty of Environment**

School of Resource and Environmental Management

- 1) Course Change (title, description): REM 658 Energy and Materials Systems Modeling



DONGYA YANG, PH.D., ASSOCIATE DEAN, RESEARCH AND GRADUATE STUDIES  
FACULTY OF ENVIRONMENT

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## MEMO

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**To:** Dr. Jeff Derksen, Dean of Graduate Studies / Chair of SGSC  
**From:** Dr. Dongya Yang, Associate Dean / Chair, Faculty of Environment Graduate Studies Committee  
**Subject:** Course REM-658 title and description change  
**Date:** May 4, 2022  
**CC:** Dr. Jonn Axsen, Graduate Chair of the School of Resource and Environmental Management

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The Faculty of Environment Graduate Studies Committee has approved the request from the School of Resource and Environmental Management (REM) for course title and description change of REM-658. Please include this item on the next SGSC agenda.

The suggested changes and the original memo from Dr. Jonn Axsen are attached.

Should you have any questions please feel free to contact me.

A handwritten signature in blue ink that reads "Dongya Yang".

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Dongya Yang, Ph.D.  
Associate Dean, Research and Graduate Studies  
Professor of Bioarchaeology



MEMO

TEL: 778.782.4659

rem.sfu.ca

TO: Dongya Yang, Associate Dean, Faculty of Environment  
FROM: Jonn Axsen, REM GSC Chair  
RE: REM-658 change to title and description  
DATE: April 29, 2022

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Dear Dongya,

Please accept the attached form to change the title and description of REM-658. This is a 5-credit elective in REM, which typically has 8 to 15 graduate students enrolled from REM and a variety of other departments at SFU and from other Universities.

The spirit of the course remains as it always has, seeking to train graduate students in modeling and methods relating to social transitions to sustainable systems. Over the last 10 years, the course has expanded somewhat in two ways. First, it used to focus mostly on quantitative modeling methods. Now the course still includes training in modeling methods (optimization and simulation), but adds a few, related modules on additional social science research methods, including survey design and data collection. Second, while the course used to focus on applying these methods to “energy and materials” cases of sustainability, REM-658 now includes a broader range of examples from sustainability systems, including sustainable transportation and resource management. For these reasons, REM would like to update the course title and description.

In short, I believe the proposed changes to title and description maintain the original spirit and content of the course, while better aligning with the what REM-658 has actually been delivering to students over the past decade.

Warm Regards,

Jonn Axsen  
REM GSC Chair

## Graduate Course Change

Attach a separate document if more space is required.

|                                                                                                                                                                                         |            |                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------|
| Course Subject/Number<br>REM-658                                                                                                                                                        | Units<br>5 | Effective Term and Year<br>Spring 2023 |
| Course Title<br>Energy and materials systems modeling                                                                                                                                   |            |                                        |
| Rationale for Change:<br>The course still covers energy and materials systems models, but over the last 10 years has expanded to cover several related social science research methods. |            |                                        |

### Proposed Changes (Check all that apply)

☐ Course number  
 ☐ Units\*  
 ☒ Title  
 ☒ Description  
 ☐ Prerequisite  
 ☐ Other \_\_\_\_\_

### Complete only the fields to be changed

| FROM                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | TO                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Course Subject/Number                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Course Subject/Number                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Units                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Units*                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Course Title<br>Energy and materials systems modeling                                                                                                                                                                                                                                                                                                                                                                                                                          | Course Title (max 100 characters)<br>Research methods and models for sustainability                                                                                                                                                                                                                                                                                                                                                          |
| Course Short Title                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Course Short Title (max 30 characters)                                                                                                                                                                                                                                                                                                                                                                                                       |
| Description<br>Theory, background, and practical experience in the use of a range of techniques for policy modelling of energy and materials flows in society with the aim of demonstrating how more environmentally and socially sustainable trajectories can be achieved. Techniques include: simulation modelling, optimization modelling, econometric and other forms of parameter estimation, input-output modelling, game playing models, and integrated systems models. | Description<br>Theory, background, and practical experience in the use of a range of methods and models related to environment, sustainability, and energy, with the aim of demonstrating how more environmentally and socially sustainable trajectories can be achieved. Techniques include: simulation modelling, optimization modelling, survey design, statistical analysis, discrete choice modeling, and qualitative research methods. |
| Prerequisite                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Prerequisite                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Other                                                                                                                                                                                                                                                                                                                                                                                                                                        |

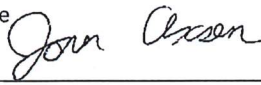
\* Program requirements may need to be revised when course units are changed. Please review the calendar and submit any relevant program revisions resulting from this course change.

**REMINDER:** All course changes must be identified on a cover memo and confirmed as approved when submitted to FGSC and SGSC.

### CONTACT PERSON

|                               |              |                  |
|-------------------------------|--------------|------------------|
| Department / School / Program | Contact name | Contact email    |
| REM                           | Jonn Axsen   | jaxsen@gmail.com |

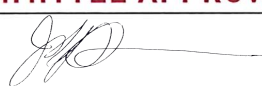
### DEPARTMENTAL APPROVAL

|                                                     |                                                                                                |                        |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------|
| Department Graduate Program Committee<br>Jonn Axsen | Signature<br> | Date<br>April 29, 2022 |
| Department Chair<br>Mark Jaccard                    | Signature<br> | Date<br>May 4, 2022    |

### FACULTY APPROVAL

|                                                          |                                                                                                |                     |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------|
| Faculty Graduate Studies Committee (FGSC)<br>Dongya Yang | Signature<br> | Date<br>May 4, 2022 |
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### SENATE GRADUATE STUDIES COMMITTEE APPROVAL

|                                                          |                                                                                                |                       |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------|
| Senate Graduate Studies Committee (SGSC)<br>Jeff Derksen | Signature<br> | Date<br>June 15, 2022 |
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#### ADMINISTRATIVE SECTION (for DGS office only)

Course Attribute: \_\_\_\_\_

Course Attribute Value: \_\_\_\_\_

Instruction Mode: \_\_\_\_\_

Attendance Type: \_\_\_\_\_

If different from regular units:

Academic Progress Units: \_\_\_\_\_

Financial Aid Progress Units: \_\_\_\_\_