

Name: \_\_\_\_\_  
 Student ID: \_\_\_\_\_  
 Date Admitted Into Major: \_\_\_\_\_

## BACHELOR OF ARTS GEOGRAPHY

| GENERAL EDUCATION REQUIREMENTS                              |                                    |                 |  |                          |
|---|------------------------------------|-----------------|--|--------------------------|
| <b>Competencies</b>   |                                    |                 |  |                          |
| <input type="checkbox"/> ♦ Basic College Math               |                                    |                 |  |                          |
| <input type="checkbox"/> ♦ Reading Comprehension            |                                    |                 |  |                          |
| <b>♣ General Education Categories (34-35 credits total)</b> |                                    |                 |  |                          |
| ♦FYS  | First Year Seminar                 |                 |  | 3                        |
| ♦W-I  | Written Communication - Level I    |                 |  | 3                        |
| ♦OC   | Oral Communication                 |                 |  | 3                        |
| PGR   | Personal Growth & Responsibility   |                 |  | 3                        |
| CEA   | Creative Expression & Appreciation |                 |  | 3                        |
| WC  | World Cultures                     |                 |  | 3                        |
| HP  | The Human Past                     |                 |  | 3                        |
| CS  | Contemporary Society               |                 |  | 3                        |
| SR  | Scientific Reasoning:              | # Any SR course |  | 3-4                      |
|   |                                    | # SR Lab course |  | 4                        |
| QR  | Quantitative Reasoning             |                 |  | 3                        |
| <b>‡ Written Communication (Level II and Level III)</b>     |                                    |                 |  |                          |
| W-II  | Written Communication - Level II   |                 |  | <input type="checkbox"/> |
| W-III   | Written Communication - Level III  |                 |  | <input type="checkbox"/> |

| COURSES IN MAJOR (33 credits total)   |            |                                       |  |          |
|---|------------|---------------------------------------|--|----------|
| <b>Major Core Courses (15 credits)</b>  |            |                                       |  |          |
| GPH   | 115        | Global Climate Change                 |  | 3        |
| GPH   | 105        | Introduction to Geography             |  |          |
|   |            | OR                                    |  | 3        |
| GPH   | 110        | World Regions                         |  |          |
| <b>GPH</b>  | <b>140</b> | <b>Introduction to Maps &amp; GIS</b> |  | <b>3</b> |
| GPH   | 301        | Intro to Quantitative Geography       |  | 3        |
| GPH   | 302        | Geographic Research                   |  | 3        |
| <b>Major Concentration Courses (18 credits)</b>   |            |                                       |  |          |
| †GPH  |            |                                       |  |          |
| ††GPH   |            |                                       |  |          |
| ††GPH   |            |                                       |  |          |
| GPH   |            |                                       |  |          |
| GPH   |            |                                       |  |          |
| GPH   |            |                                       |  |          |
| <b>Foreign Language (0-12 credits total)</b>  |            |                                       |  |          |
|   |            |                                       |  |          |
|   |            |                                       |  |          |
|   |            |                                       |  |          |
| <b>Minor/Free Electives (40 credits minimum)</b>  |            |                                       |  |          |
| May be necessary to take additional credits to attain the minimum 120 credits required for graduation depending on choices made for general education or minor selection. |            |                                       |  |          |
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- ♥ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.
- ♣ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.
- # These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline.
- ‡ Level II and Level III Written Communications Courses may be used to satisfy requirements anywhere else in a student's program of study where they may apply. The credits are counted only in one area.
- † Regional Electives: GPH 110, 220, 221, 222, 229, 233, 234, 235, 236, 237, 238, 239.
- †† GPH 300-level or GPH 400-level class.

|  |  |
|--|--|
| ♦ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS | ♦ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS |
|--|--|

Exceptions in the timing of courses will be made for transfer students

Name: \_\_\_\_\_  
 Student ID: \_\_\_\_\_  
 Date Admitted Into Major: \_\_\_\_\_

**BACHELOR OF SCIENCE  
 CARTOGRAPHY AND GIS**

| GENERAL EDUCATION REQUIREMENTS                              |                                       |  |  |                          |
|---|---------------------------------------|--|--|--------------------------|
| <b>Competencies</b>   |                                       |  |  |                          |
| <input type="checkbox"/>                                    | ♦ Basic College Math                  |  |  |                          |
| <input type="checkbox"/>                                    | ♦ Reading Comprehension               |  |  |                          |
| <b>▲ General Education Categories (34-35 credits total)</b> |                                       |  |  |                          |
| ♦FYS  | First Year Seminar                    |  |  | 3                        |
| ♦W-I  | Written Communication - Level I       |  |  | 3                        |
| ♦OC   | Oral Communication                    |  |  | 3                        |
| PGR   | Personal Growth & Responsibility      |  |  | 3                        |
| CEA   | Creative Expression & Appreciation    |  |  | 3                        |
| WC  | World Cultures                        |  |  | 3                        |
| HP  | The Human Past                        |  |  | 3                        |
| CS  | Contemporary Society                  |  |  | 3                        |
| SR  | Scientific Reasoning: # Any SR course |  |  | 3-4                      |
|   | # SR Lab course                       |  |  | 4                        |
| QR  | Quantitative Reasoning                |  |  | 3                        |
| <b>‡ Written Communication (Level II and Level III)</b>     |                                       |  |  |                          |
| W-II  | Written Communication - Level II      |  |  | <input type="checkbox"/> |
| W-III   | Written Communication - Level III     |  |  | <input type="checkbox"/> |

| Minor/Free Electives (43 credits minimum)   |  |  |  |  |
|---|--|--|--|--|
| May be necessary to take additional credits to attain the minimum 120 credits required for graduation depending on choices made for general education or minor selection. |  |  |  |  |
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| COURSES IN MAJOR (42 credits total)             |     |  |   |  |
|---|-----|--|---|--|
| <b>Major Core Courses (15 credits)</b>          |     |  |   |  |
| GPH   | 115 | Global Climate Change                                      | 3 |  |
| GPH   | 105 | Introduction to Geography<br>OR<br>World Regions           | 3 |  |
| GPH   | 110 | Intro to Maps & GIS  | 3 |  |
| GPH   | 301 | Intro to Quantitative Geography                            | 3 |  |
| GPH   | 302 | Geographic Research  | 3 |  |
| <b>Major Concentration Courses (15 credits)</b> |     |  |   |  |
| GPH   | 245 | Cartography  | 3 |  |
| GPH   | 340 | GIS  | 3 |  |
| GPH   | 344 | Remote Sensing   | 3 |  |
| GPH   | 446 | Advanced GIS   | 3 |  |
| GPH   | 343 | Air Photo Interpretation<br>OR<br>Digital Image Processing | 3 |  |
| GPH   | 444 | Digital Image Processing                                   |   |  |
| <b>Techniques Electives (6 credits)</b>         |     |  |   |  |
| GPH   | 343 | Air Photo Interpretation<br>OR<br>Digital Image Processing | 3 |  |
| GPH   | 444 | Digital Image Processing                                   | 3 |  |
| GPH   | 346 | GIS and Business   | 3 |  |
| GPH   | 347 | GIS Applications   | 3 |  |
| GPH   | 442 | Geospatial Programming                                     | 3 |  |
| <b>Geography Electives (6 credits)</b>          |     |  |   |  |
| GPH   |     | Geography Elective   | 3 |  |
| GPH   |     | Geography Elective   | 3 |  |

♥ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.

- ♣ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.
- # These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline.
- ‡ Level II and Level III Written Communications Courses may be used to satisfy requirements anywhere else in a student's program of study where they may apply. The credits are counted only in one area.

♦ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS      ♦ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS

Exceptions in the timing of courses will be made for transfer students

|                           |       |
|---------------------------|-------|
| Name:                     | _____ |
| Student ID:               | _____ |
| Date Admitted Into Major: | _____ |

## BACHELOR OF SCIENCE GEOGRAPHY

|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|---------------------------------------|------------------------------------|--------------------------|--------------------------|------|--------------------|--|--|---|--|------|---------------------------------|--|--|---|--|-----|--------------------|--|--|---|--|-----|----------------------------------|--|--|---|--|-----|------------------------------------|--|--|---|--|----|----------------|--|--|---|--|----|----------------|--|--|---|--|----|----------------------|--|--|---|--|----|---------------------------------------|--|--|-----|--|--|-----------------|--|--|---|--|----|------------------------|--|--|---|--|------|----------------------------------|--|--|--------------------------|-------|-----------------------------------|--|--|--------------------------|---|-----|-----|-----------------------|---|-----|-----|---------------------------------|---|-----|-----|---------------|--|-----|-----|---------------------|---|-----|-----|------------------------------------|---|-----|-----|---------------------|---|------|--|--|--|-------|--|--|--|-------|--|--|--|-----|--|--|--|-----|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <p style="text-align: center;"><b>GENERAL EDUCATION REQUIREMENTS</b></p> <p style="text-align: center;"><b>Competencies</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15px;"><input type="checkbox"/></td> <td>♦ Basic College Math</td> </tr> <tr> <td><input type="checkbox"/></td> <td>♦ Reading Comprehension</td> </tr> </table> <p style="text-align: center;"><b>♦General Education Categories (34-35 credits total)</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>♦FYS</td><td>First Year Seminar</td><td></td><td></td><td style="text-align: center;">3</td><td></td></tr> <tr><td>♦W-I</td><td>Written Communication - Level I</td><td></td><td></td><td style="text-align: center;">3</td><td></td></tr> <tr><td>♦OC</td><td>Oral Communication</td><td></td><td></td><td style="text-align: center;">3</td><td></td></tr> <tr><td>PGR</td><td>Personal Growth &amp; Responsibility</td><td></td><td></td><td style="text-align: center;">3</td><td></td></tr> <tr><td>CEA</td><td>Creative Expression &amp; 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| <input type="checkbox"/>   | ♦ Basic College Math                  |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/>   | ♦ Reading Comprehension               |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ♦FYS   | First Year Seminar                    |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ♦W-I   | Written Communication - Level I       |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ♦OC  | Oral Communication                    |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PGR  | Personal Growth & Responsibility      |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CEA  | Creative Expression & Appreciation    |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| WC   | World Cultures                        |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HP   | The Human Past                        |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CS   | Contemporary Society                  |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SR   | Scientific Reasoning: # Any SR course |                                    |                          | 3-4                      |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | # SR Lab course                       |                                    |                          | 4                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| QR   | Quantitative Reasoning                |                                    |                          | 3                        |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-II   | Written Communication - Level II      |                                    |                          | <input type="checkbox"/> |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| W-III  | Written Communication - Level III     |                                    |                          | <input type="checkbox"/> |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 115                                   | Global Climate Change              | 3                        |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 105                                   | Introduction to Geography<br>OR    | 3                        |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 110                                   | World Regions                      |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 140                                   | Intro to Maps & GIS                | 3                        |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 301                                   | Intro to Quantitative<br>Geography | 3                        |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  | 302                                   | Geographic Research                | 3                        |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| †GPH   |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ††GPH  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ††GPH  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPH  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |                                       |                                    |                          |                          |      |                    |  |  |   |  |      |                                 |  |  |   |  |     |                    |  |  |   |  |     |                                  |  |  |   |  |     |                                    |  |  |   |  |    |                |  |  |   |  |    |                |  |  |   |  |    |                      |  |  |   |  |    |                                       |  |  |     |  |  |                 |  |  |   |  |    |                        |  |  |   |  |      |                                  |  |  |                          |       |                                   |  |  |                          |   |     |     |                       |   |     |     |                                 |   |     |     |               |  |     |     |                     |   |     |     |                                    |   |     |     |                     |   |      |  |  |  |       |  |  |  |       |  |  |  |     |  |  |  |     |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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▼ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.

◆ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.

# These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline.

‡ Level II and Level III Written Communications Courses may be used to satisfy requirements anywhere else in a student's program of study where they may apply. The credits are counted only in one area.

† Regional Electives: GPH 110, 220, 221, 222, 229, 233, 234, 235, 236, 237, 238, 239.

†† GPH 300-level or GPH 400-level course.

|  |  |
|--|--|
| ◆ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS | ◆ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS |
|--|--|

Exceptions in the timing of courses will be made for transfer students

**Total credits for graduation: 120**

**Effective: 9/2016**

Name: \_\_\_\_\_  
 Student ID: \_\_\_\_\_  
 Date Admitted Into Major: \_\_\_\_\_

**BACHELOR OF SCIENCE  
 GEOGRAPHY**

**ENVIRONMENTAL SUSTAINABILITY CONCENTRATION**

**GENERAL EDUCATION REQUIREMENTS**

**Competencies**

|                          |                         |
|--------------------------|-------------------------|
| <input type="checkbox"/> | ♦ Basic College Math    |
| <input type="checkbox"/> | ♦ Reading Comprehension |

**♣ General Education Categories (34-35 credits total)**

|      |                                    |                 |  |     |
|------|------------------------------------|-----------------|--|-----|
| ♦FYS | First Year Seminar                 |                 |  | 3   |
| ♦W-I | Written Communication - Level I    |                 |  | 3   |
| ♦OC  | Oral Communication                 |                 |  | 3   |
| PGR  | Personal Growth & Responsibility   |                 |  | 3   |
| CEA  | Creative Expression & Appreciation |                 |  | 3   |
| WC   | World Cultures                     |                 |  | 3   |
| HP   | The Human Past                     |                 |  | 3   |
| CS   | Contemporary Society               |                 |  | 3   |
| SR   | Scientific Reasoning:              | # Any SR course |  | 3-4 |
|      |                                    | # SR Lab course |  | 4   |
| QR   | Quantitative Reasoning             |                 |  | 3   |

**‡ Written Communication (Level II and Level III)**

|       |                                   |                          |
|-------|-----------------------------------|--------------------------|
| W-II  | Written Communication - Level II  | <input type="checkbox"/> |
| W-III | Written Communication - Level III | <input type="checkbox"/> |

**Minor/Free Electives (40 credits minimum)**

May be necessary to take additional credits to attain the minimum 120 credits required for graduation depending on choices made for general education or minor selection.

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**COURSES IN MAJOR (45 credits total)**

**Major Core Courses (15 credits)**

|     |     |                                 |   |
|-----|-----|---------------------------------|---|
| GPH | 115 | Global Climate Change           | 3 |
| GPH | 105 | Introduction to Geography<br>OR | 3 |
| GPH | 110 | World Regions                   |   |
| GPH | 140 | Intro to Maps & GIS             | 3 |
| GPH | 301 | Intro to Quantitative Geography | 3 |
| GPH | 302 | Geographic Research             | 3 |

**Concentration Core Courses (12 credits)**

|     |      |  |   |
|-----|------|--|---|
| GPH | 282P | Environmental Global Issues              | 3 |
| GPH | 371  | Environmental Sustainability and Society | 3 |
| GPH | 375  | Food, Drink & the Environment            | 3 |
| IDS | 366  | Energy and the Environment               | 3 |

**Concentration Planning Courses (6 credits)**

**Choose two:**

|     |     |  |   |
|-----|-----|--|---|
| ECO | 319 | Environment & Natural Resource Economics | 3 |
| GPH | 373 | Land Use Planning & Analysis             | 3 |
| GPH | 377 | Environmental Assessment                 | 3 |

**Concentration Techniques Course (3 credits)**

**Choose one:**

|     |     |                          |   |
|-----|-----|--------------------------|---|
| GPH | 340 | Geographic Info. Systems | 3 |
| GPH | 344 | Remote Sensing           | 3 |

**Concentration Perspectives Courses (9 credits)**

**Choose three:**

|     |      |                                     |   |
|-----|------|-------------------------------------|---|
| BIO | 208  | Environmental Problems              | 3 |
| GPH | 252  | Native American Lands & Environment | 3 |
| GPH | 315  | Economic Geography                  | 3 |
| GPH | 360  | Globalization                       | 3 |
| GPH | 376P | Conservation of Nat. Resources      | 3 |
| GPH | 379  | Environmental Justice               | 3 |
| GLS | 237  | Medical Geology                     | 3 |
| GLS | 351  | Economic Geology                    | 3 |
| PHL | 224  | Environmental Ethics                | 3 |
| POL | 304  | Environmental Politics              | 3 |

♥ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.

- ♣ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.
- # These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline.
- ‡ Level II and Level III Written Communications Courses may be used to satisfy requirements anywhere else in a student's program of study where they may apply. The credits are counted only in one area.

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| ♦ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS | ♦ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS |
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Exceptions in the timing of courses will be made for transfer students

Total credits for graduation: 120

**Effective: 9/2016**

Name: \_\_\_\_\_  
 Student ID: \_\_\_\_\_  
 Date Admitted Into Major: \_\_\_\_\_

**BACHELOR OF SCIENCE  
 GEOGRAPHY  
 TRAVEL AND TOURISM CONCENTRATION**

**GENERAL EDUCATION REQUIREMENTS**

**Competencies**

|  |
|--|
| <input type="checkbox"/> ♦ Basic College Math    |
| <input type="checkbox"/> ♦ Reading Comprehension |

**♣ General Education Categories (34-35 credits total)**

|      |                                    |                 |  |     |
|------|------------------------------------|-----------------|--|-----|
| ♦FYS | First Year Seminar                 |                 |  | 3   |
| ♦W-I | Written Communication - Level I    |                 |  | 3   |
| ♦OC  | Oral Communication                 |                 |  | 3   |
| PGR  | Personal Growth & Responsibility   |                 |  | 3   |
| CEA  | Creative Expression & Appreciation |                 |  | 3   |
| WC   | World Cultures                     |                 |  | 3   |
| HP   | The Human Past                     |                 |  | 3   |
| CS   | Contemporary Society               |                 |  | 3   |
| SR   | Scientific Reasoning:              | # Any SR course |  | 3-4 |
|      |                                    | # SR Lab course |  | 4   |
| QR   | Quantitative Reasoning             |                 |  | 3   |

**‡ Written Communication (Level II and Level III)**

|       |                                   |  |  |                          |
|-------|-----------------------------------|--|--|--------------------------|
| W-II  | Written Communication - Level II  |  |  | <input type="checkbox"/> |
| W-III | Written Communication - Level III |  |  | <input type="checkbox"/> |

**COURSES IN MAJOR (33 credits total)**

**Major Core Courses (15 credits)**

|     |     |                                 |   |  |
|-----|-----|---------------------------------|---|--|
| GPH | 115 | Global Climate Change           | 3 |  |
| GPH | 105 | Introduction to Geography<br>OR | 3 |  |
| GPH | 110 | World Regions                   |   |  |
| GPH | 140 | Intro to Maps & GIS             | 3 |  |
| GPH | 301 | Intro to Quantitative Geography | 3 |  |
| GPH | 302 | Geographic Research             | 3 |  |

**Major Concentration Courses (6 credits)**

|     |     |                             |   |  |
|-----|-----|-----------------------------|---|--|
| GPH | 261 | Intro to Travel and Tourism | 3 |  |
| GPH | 315 | Economic Geography          | 3 |  |

**Concentration Electives (12 credits)**

**Choose four of these courses:**

|      |     |  |   |  |
|------|-----|--|---|--|
| GPH  | 246 | Parks and Protected Areas                | 3 |  |
| GPH  | 264 | Recreation Geography                     | 3 |  |
| GPH  | 317 | Transportation Geography                 | 3 |  |
| GPH  | 346 | GIS in Bus. & Commun Develop.            | 3 |  |
| GPH  | 364 | Special Events and Festivals             | 3 |  |
| GPH  | 402 | Travel Seminar                           | 3 |  |
| GPH  | 462 | Exploring Tourism Destinations           | 3 |  |
| GPH  | 463 | International Perspectives on<br>Tourism | 3 |  |
| GPH  | 464 | Tourism Development                      | 3 |  |
| †GPH |     | Regional Elective                        | 3 |  |

**Minor/Free Electives (52 credits minimum)**

May be necessary to take additional credits to attain the minimum 120 credits required for graduation depending on choices made for general education or minor selection.

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♥ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.

♣ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.

# These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline.

‡ Level II and Level III Written Communications Courses may be used to satisfy requirements anywhere else in a student's program of study where they may apply. The credits are counted only in one area.

† Regional Electives: GPH 220, 221, 222, 229, 233, 234, 235, 236, 237..

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| ♦ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS | ♦ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS |
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Exceptions in the timing of courses will be made for transfer students

Total credits for graduation: 120

Effective: 9/2016



**COMBINED BACHELOR OF SCIENCE CARTOGRAPHY  
 AND  
 MASTER OF SCIENCE GEO-INFORMATION SCIENCE**

**GENERAL EDUCATION REQUIREMENTS**

**Competencies**

|  |
|--|
| <input type="checkbox"/> ♦ Basic College Math    |
| <input type="checkbox"/> ♦ Reading Comprehension |

**♦ General Education Categories - 34-35 credits**

|      |                                    |                 |  |     |
|------|------------------------------------|-----------------|--|-----|
| ♦FYS | First Year Seminar                 |                 |  | 3   |
| ♦W-I | Written Communication - Level I    |                 |  | 3   |
| ♦OC  | Oral Communication                 |                 |  | 3   |
| PGR  | Personal Growth & Responsibility   |                 |  | 3   |
| CEA  | Creative Expression & Appreciation |                 |  | 3   |
| WC   | World Cultures                     |                 |  | 3   |
| HP   | The Human Past                     |                 |  | 3   |
| CS   | Contemporary Society               |                 |  | 3   |
| SR   | Scientific Reasoning:              | # Any SR course |  | 3-4 |
|      |                                    | # SR Lab course |  | 4   |
| QR   | Quantitative Reasoning             |                 |  | 3   |

**‡ Written Communication (Level II and Level III)**

|       |                                   |  |  |                          |
|-------|-----------------------------------|--|--|--------------------------|
| W-II  | Written Communication - Level II  |  |  | <input type="checkbox"/> |
| W-III | Written Communication - Level III |  |  | <input type="checkbox"/> |

**Minor/Free Electives (42 credits total)**

Additional free electives beyond the credits listed may be required based on the use of support courses to satisfy the General Education Category requirements.

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**COURSES IN MAJOR (42 credits)**

**Major Core Courses (15 credits total)**

|     |     |  |   |
|-----|-----|--|---|
| GPH | 115 | Global Climate Change                  | 3 |
| GPH | 105 | Introduction to Geography<br>OR        | 3 |
| GPH | 110 | World Regions                          |   |
| GPH | 140 | Introduction to Maps & GIS             | 3 |
| GPH | 301 | Introduction to Quantitative Geography | 3 |
| GPH | 302 | Geographic Research                    | 3 |

**Major Concentration Courses (27 credits)**

|     |     |   |   |
|-----|-----|---|---|
| GPH | 245 | Cartography                                 | 3 |
| GPH | 340 | GIS   | 3 |
| GPH | 344 | Remote Sensing                              | 3 |
| GPH | 446 | Advanced GIS                                | 3 |
| GPH | 343 | Air Photos Interpretation<br>OR             | 3 |
| GPH | 444 | Digital Image Processing                    |   |
| GPH | 903 | Geographic Information Systems              | 3 |
| GPH | 909 | Interpretation of Remote Sensing<br>Imagery | 3 |
| GPH | 942 | Advanced Geographic Quantitative<br>Methods | 3 |
| GPH | 945 | GIS Project Implantation                    | 3 |

**Techniques Electives (6 credits)**

|     |     |                                 |   |
|-----|-----|---------------------------------|---|
| GPH | 343 | Air Photos Interpretation<br>OR | 3 |
| GPH | 444 | Digital Image Processing        |   |
| GPH | 346 | GIS and Business                | 3 |
| GPH | 347 | GIS Applications                | 3 |
| GPH | 442 | Geospatial Programming          | 3 |

**Geography electives (6 credits)**

|     |  |                    |   |
|-----|--|--------------------|---|
| GPH |  | Geography Elective | 3 |
| GPH |  | Geography Elective | 3 |

**5<sup>th</sup> Year Courses (19 graduate credits)**

| Fall   |     |   |   |
|--------|-----|---|---|
| GPH    | 904 | GIS for Research and Analysis             | 3 |
| GPH    | 960 | Software Design and Programming in<br>GIS | 3 |
| GPH    |     | Graduate Elective                         | 3 |
| Spring |     |   |   |
| GPH    | 952 | Spatial Database Analysis and Design      | 3 |
| GPH    | 876 | Directed Study (thesis)<br>OR             | 4 |
| GPH    | 965 | Seminar in GIS                            |   |
| GPH    |     | Graduate Elective                         | 3 |

▼ Students may choose to use support courses to satisfy general education categories, but may not be required to do so. **Note:** If a course is used to satisfy two or more requirements (for example, a support course and Scientific Reasoning requirement), the credits are counted in only one place. Using a course to satisfy more than one requirement does **not** reduce the credit total required for graduation.

♦ Courses used to satisfy the general education requirements of the university must be taken from a minimum of six different academic disciplines. First Year Seminar and Level I Written Communications courses are exempt from this restriction. Courses may not be used to fulfill both major discipline and general education requirements.

# These Scientific Reasoning General Education Category courses do not have to be a sequence or be from the same discipline

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| ♦ COMPETENCIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS | ♦ GENERAL EDUCATION CATEGORIES - TO BE COMPLETED WITHIN THE FIRST 30 CREDITS |
|--|--|

Exceptions in the timing of courses will be made for transfer students

**Total credits for graduation: 120**

**The additional credits listed above are required for Graduate graduation**

**Effective: 9/2016**