

# UNDERGRADUATE RESEARCH CERTIFICATE (M)

The CUWAA UGR Certificate will allow students to demonstrate proficiency and competency for conducting ethical research within their specific program/major. Upon completion of all UGR Certificate requirements, the CUWAA Registrar will designate certificate completion on final transcripts. The UGR Certificate is available to students through participating programs (e.g., Biology, Chemistry, Psychology, Theatre, Exercise Physiology, etc.). Any CUWAA student can contact the Office of IPE @ CUW (ipe@cuw.edu) or their Major Advisor for more information.

By completing the certificate, a student will strengthen research methods in their particular field, while learning to integrate disciplinary knowledge, enhance critical thinking and creative problem solving as well as improve communicative fluency through dissemination of research findings.

## Curriculum

Students will all complete the Research Foundations and Capstone Experience, in addition to the track of their choice.

| Code                        | Title                                                      | Hours    |
|-----------------------------|------------------------------------------------------------|----------|
| <b>Research Foundations</b> |                                                            |          |
|                             | CITI Training (online) - Pass/Fail                         | 0        |
| IPE 1100                    | Introduction to Undergraduate Research Methods (Pass/Fail) | 1        |
| CCE 1040                    | Science & Humanity                                         | 3        |
| <b>Total Hours</b>          |                                                            | <b>4</b> |

| Code                       | Title                                                                                                                                                    | Hours |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Capstone Experience</b> |                                                                                                                                                          |       |
|                            | Participate in CUWAA Poster Session (required) Signed form of completion uploaded to Blackboard - Pass/Fail                                              |       |
|                            | Final presentation of research to UGR committee/faculty/CUWAA community (required), upload presentation materials to Blackboard organization - Pass/Fail |       |
|                            | Attend academic presentation/events (3 or more) - Pass/Fail                                                                                              |       |

| Code                                                                      | Title                                                                  | Hours |
|---------------------------------------------------------------------------|------------------------------------------------------------------------|-------|
| <b>BIOLOGY</b>                                                            |                                                                        |       |
|                                                                           | <i>Undergrad Reinforcement Coursework - Choose at least 6 credits:</i> | 6     |
| BIO 1402                                                                  | General Biology II                                                     |       |
|                                                                           | or BIO 1502 Functional Human Biology II                                |       |
| BIO 2500                                                                  | Zoology                                                                |       |
| BIO 2600                                                                  | Biology of Microorganisms                                              |       |
| ENV 2200                                                                  | Water Quality and Aquaponics                                           |       |
| <i>Additional Courses - highly recommended to take one, not required:</i> |                                                                        |       |
| PHIL 2400                                                                 | Environmental Ethics                                                   |       |
| PHIL 3500                                                                 | Bioethical Dilemmas in Contemporary Society                            |       |
| PHIL 4600                                                                 | Research Ethics                                                        |       |
|                                                                           | <i>Discipline Specific Coursework - Choose at least 6 credits:</i>     | 6     |
| BIO 3800                                                                  | Histology                                                              |       |
| BIO 4100                                                                  | Ecology                                                                |       |
| BIO 4200                                                                  | Molecular Biology                                                      |       |
| BIO 4800                                                                  | Human Physiology                                                       |       |
| ENV 3200                                                                  | Environmental Data Analysis                                            |       |

|                                                                |                                             |           |
|----------------------------------------------------------------|---------------------------------------------|-----------|
| CHEM 4224                                                      | Advanced Biochemistry                       |           |
| BIO 4990                                                       | Undergraduate Research                      |           |
|                                                                | or CHEM 499 Undergraduate Research          |           |
|                                                                | or PHYS 499 Undergraduate Research          |           |
|                                                                | or ENV 4990 Advanced Applied Field Research |           |
| <i>Advanced Study Experience - 2 or more credits required:</i> |                                             | 2         |
| BIO 4990                                                       | Undergraduate Research                      |           |
|                                                                | or CHEM 499 Undergraduate Research          |           |
|                                                                | or PHYS 499 Undergraduate Research          |           |
|                                                                | or ENV 4990 Advanced Applied Field Research |           |
| IPE 5900                                                       | Special Topics                              |           |
| <b>Total Hours</b>                                             |                                             | <b>14</b> |

## Curriculum

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| Code                        | Title                                                      | Hours    |
|-----------------------------|------------------------------------------------------------|----------|
| <b>Research Foundations</b> |                                                            |          |
|                             | CITI Training (online) - Pass/Fail                         | 0        |
| IPE 1100                    | Introduction to Undergraduate Research Methods (Pass/Fail) | 1        |
| CCE 1040                    | Science & Humanity                                         | 3        |
| <b>Total Hours</b>          |                                                            | <b>4</b> |

| Code                       | Title                                                                                                                                                    | Hours |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Capstone Experience</b> |                                                                                                                                                          |       |
|                            | Participate in CUWAA Poster Session (required) Signed form of completion uploaded to Blackboard - Pass/Fail                                              |       |
|                            | Final presentation of research to UGR committee/faculty/CUWAA community (required), upload presentation materials to Blackboard organization - Pass/Fail |       |
|                            | Attend academic presentation/events (3 or more) - Pass/Fail                                                                                              |       |

| Code                                                          | Title                                                                  | Hours |
|---------------------------------------------------------------|------------------------------------------------------------------------|-------|
| <b>CHEMISTRY</b>                                              |                                                                        |       |
|                                                               | <i>Undergrad Reinforcement Coursework - Choose at least 6 credits:</i> | 6     |
| CHEM 1424                                                     | General Chemistry II                                                   |       |
| CHEM 2204                                                     | Analytical Chemistry                                                   |       |
| CHEM 2304                                                     | Descriptive Inorganic Chemistry                                        |       |
| CHEM 2424                                                     | Organic Chemistry II                                                   |       |
|                                                               | <i>Discipline Specific Coursework - Choose at least 6 credits:</i>     | 6     |
| CHEM 3404                                                     | Physical Chemistry: Thermodynamics                                     |       |
| CHEM 4224                                                     | Advanced Biochemistry                                                  |       |
| CHEM 4334                                                     | Advanced Organic Chemistry                                             |       |
| CHEM 4424                                                     | Advanced Inorganic Chemistry                                           |       |
| CHEM 4524                                                     | Instrumental Analysis                                                  |       |
| CHEM 4990                                                     | Undergraduate Research                                                 |       |
|                                                               | or BIO 4990 Undergraduate Research                                     |       |
|                                                               | or PHYS 4990 Undergraduate Research                                    |       |
|                                                               | or ENV 4990 Advanced Applied Field Research                            |       |
| <i>Advance Study Experience - 2 or more credits required:</i> |                                                                        | 2     |
| CHEM 4921                                                     | Chemistry Senior Seminar II                                            |       |
| CHEM 4990                                                     | Undergraduate Research                                                 |       |

|                                                                                                                         |                            |           |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|
| or BIO 4990 Undergraduate Research<br>or PHYS 499 Undergraduate Research<br>or ENV 4990 Advanced Applied Field Research |                            |           |
| PSY 4850                                                                                                                | Research Proposal          |           |
| PSY 4900                                                                                                                | Psychology Senior Seminar  |           |
| THTR 4800                                                                                                               | Senior Capstone in Theatre |           |
| IPE 5900                                                                                                                | Special Topics             |           |
| EXPH 4995                                                                                                               | Senior Seminar             |           |
| <b>Total Hours</b>                                                                                                      |                            | <b>14</b> |

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| Code                               | Title                                                      | Hours    |
|------------------------------------|------------------------------------------------------------|----------|
| <b>Research Foundations</b>        |                                                            |          |
| CITI Training (online) - Pass/Fail |                                                            | 0        |
| IPE 1100                           | Introduction to Undergraduate Research Methods (Pass/Fail) | 1        |
| CCE 1040                           | Science & Humanity                                         | 3        |
| <b>Total Hours</b>                 |                                                            | <b>4</b> |

| Code                                                                                                                                                     | Title | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| <b>Capstone Experience</b>                                                                                                                               |       |       |
| Participate in CUWAA Poster Session (required) Signed form of completion uploaded to Blackboard - Pass/Fail                                              |       |       |
| Final presentation of research to UGR committee/faculty/CUWAA community (required), upload presentation materials to Blackboard organization - Pass/Fail |       |       |
| Attend academic presentation/events (3 or more) - Pass/Fail                                                                                              |       |       |

| Code                                                                   | Title                                                                                                                                             | Hours |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Exercise Physiology</b>                                             |                                                                                                                                                   |       |
| <i>Undergrad Reinforcement Coursework - Choose at least 6 credits:</i> |                                                                                                                                                   |       |
| EXPH 2225                                                              | Introduction to Exercise Science                                                                                                                  | 6     |
| HHP 2280                                                               | Psychology of Sport                                                                                                                               |       |
| HHP 3342                                                               | Nutrition for Wellness and Performance                                                                                                            |       |
| <i>Additional Courses highly recommended, not required:</i>            |                                                                                                                                                   |       |
| PHIL 2400                                                              | Environmental Ethics                                                                                                                              |       |
| PHIL 3500                                                              | Bioethical Dilemmas in Contemporary Society                                                                                                       |       |
| <i>Discipline Specific Coursework - Choose at least 6 credits:</i>     |                                                                                                                                                   |       |
| EXPH 3470                                                              | Exercise Physiology                                                                                                                               | 6     |
| EXPH 3471                                                              | Advanced Exercise Physiology                                                                                                                      |       |
| EXPH 4475                                                              | Seminar in Exercise Physiology                                                                                                                    |       |
| EXPH 4494                                                              | Exercise and Chronic Disease                                                                                                                      |       |
| <i>Additional Courses highly recommended, not required:</i>            |                                                                                                                                                   |       |
| PHIL 4600                                                              | Research Ethics                                                                                                                                   |       |
| <i>Advance Study Experience - 2 or more credits required:</i>          |                                                                                                                                                   |       |
| EXPH 4995                                                              | Senior Seminar                                                                                                                                    | 2     |
| BIO 4990                                                               | Undergraduate Research<br>or CHEM 499 Undergraduate Research<br>or PHYS 499 Undergraduate Research<br>or ENV 4990 Advanced Applied Field Research |       |
| PSY 4850                                                               | Research Proposal                                                                                                                                 |       |

|                    |                            |           |
|--------------------|----------------------------|-----------|
| PSY 4900           | Psychology Senior Seminar  |           |
| IPE 5900           | Special Topics             |           |
| THTR 4800          | Senior Capstone in Theatre |           |
| <b>Total Hours</b> |                            | <b>14</b> |

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| Code                               | Title                                                      | Hours    |
|------------------------------------|------------------------------------------------------------|----------|
| <b>Research Foundations</b>        |                                                            |          |
| CITI Training (online) - Pass/Fail |                                                            | 0        |
| IPE 1100                           | Introduction to Undergraduate Research Methods (Pass/Fail) | 1        |
| CCE 1040                           | Science & Humanity                                         | 3        |
| <b>Total Hours</b>                 |                                                            | <b>4</b> |

| Code                                                                                                                                                     | Title | Hours |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| <b>Capstone Experience</b>                                                                                                                               |       |       |
| Participate in CUWAA Poster Session (required) Signed form of completion uploaded to Blackboard - Pass/Fail                                              |       |       |
| Final presentation of research to UGR committee/faculty/CUWAA community (required), upload presentation materials to Blackboard organization - Pass/Fail |       |       |
| Attend academic presentation/events (3 or more) - Pass/Fail                                                                                              |       |       |

| Code                                                                   | Title                                                                                                                                             | Hours     |
|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>PSYCHOLOGY</b>                                                      |                                                                                                                                                   |           |
| <i>Undergrad Reinforcement Coursework - Choose at least 6 credits:</i> |                                                                                                                                                   |           |
| PSY 2050                                                               | Theories of Learning                                                                                                                              | 6         |
| PSY 2220                                                               | Adolescent Development                                                                                                                            |           |
| <i>Additional Courses highly recommended, not required:</i>            |                                                                                                                                                   |           |
| PHIL 2400                                                              | Environmental Ethics                                                                                                                              |           |
| PHIL 3500                                                              | Bioethical Dilemmas in Contemporary Society                                                                                                       |           |
| <i>Discipline Specific Coursework - Choose at least 6 credits:</i>     |                                                                                                                                                   |           |
| PSY 3410                                                               | Cognitive Psychology                                                                                                                              | 6         |
| PSY 3500                                                               | Experimental Psychology                                                                                                                           |           |
| PSY 4210                                                               | Human Sexuality                                                                                                                                   |           |
| <i>Additional Courses highly recommended, not required:</i>            |                                                                                                                                                   |           |
| PHIL 4600                                                              | Research Ethics                                                                                                                                   |           |
| <i>Advance Study Experience - 2 or more credits required:</i>          |                                                                                                                                                   |           |
| BIO 4990                                                               | Undergraduate Research<br>or CHEM 499 Undergraduate Research<br>or PHYS 499 Undergraduate Research<br>or ENV 4990 Advanced Applied Field Research |           |
| PSY 4850                                                               | Research Proposal                                                                                                                                 |           |
| PSY 4900                                                               | Psychology Senior Seminar                                                                                                                         |           |
| THTR 4800                                                              | Senior Capstone in Theatre                                                                                                                        |           |
| IPE 5900                                                               | Special Topics                                                                                                                                    |           |
| EXPH 4995                                                              | Senior Seminar                                                                                                                                    |           |
| <b>Total Hours</b>                                                     |                                                                                                                                                   | <b>14</b> |

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|------------------------------------|------------------------------------------------------------|----------|
| <b>Research Foundations</b>        |                                                            |          |
| CITI Training (online) - Pass/Fail |                                                            | 0        |
| IPE 1100                           | Introduction to Undergraduate Research Methods (Pass/Fail) | 1        |
| CCE 1040                           | Science & Humanity                                         | 3        |
| <b>Total Hours</b>                 |                                                            | <b>4</b> |

| Code                                                                                                                                                     | Title | Hours |
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| <b>Capstone Experience</b>                                                                                                                               |       |       |
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| Attend academic presentation/events (3 or more) - Pass/Fail                                                                                              |       |       |

| Code                                                                   | Title                                       | Hours     |
|------------------------------------------------------------------------|---------------------------------------------|-----------|
| <b>THEATRE</b>                                                         |                                             |           |
| <i>Undergrad Reinforcement Coursework - Choose at least 6 credits:</i> |                                             | <b>6</b>  |
| THTR 1000                                                              | Orientation to Theatre                      |           |
| THTR 1400                                                              | Stagecraft I: Intro Stagecraft              |           |
| THTR 2230                                                              | Musical Theatre and Dancing                 |           |
| THTR 2400                                                              | Producing Children's Theatre                |           |
| <i>Additional Courses highly recommended, not required:</i>            |                                             |           |
| PHIL 2400                                                              | Environmental Ethics                        |           |
| PHIL 3500                                                              | Bioethical Dilemmas in Contemporary Society |           |
| <i>Discipline Specific Coursework - Choose at least 6 credits:</i>     |                                             | <b>6</b>  |
| THTR 3010                                                              | Theatre in Education                        |           |
| THTR 3020                                                              | 20th Century American Drama                 |           |
| THTR 3420                                                              | Stage Directing                             |           |
| THTR 4000                                                              | Special Topics in Theatre                   |           |
| THTR 4200                                                              | Acting III: Advanced Acting                 |           |
| <i>Additional Courses highly recommended, not required:</i>            |                                             |           |
| PHIL 4600                                                              | Research Ethics                             |           |
| <i>Advance Study Experience - 2 or more credits required:</i>          |                                             | <b>2</b>  |
| BIO 4990                                                               | Undergraduate Research                      |           |
|                                                                        | or CHEM 4990 Undergraduate Research         |           |
|                                                                        | or PHYS 4990 Undergraduate Research         |           |
|                                                                        | or ENV 4990 Advanced Applied Field Research |           |
| PSY 4850                                                               | Research Proposal                           |           |
| PSY 4900                                                               | Psychology Senior Seminar                   |           |
| THTR 4800                                                              | Senior Capstone in Theatre                  |           |
| IPE 5900                                                               | Special Topics                              |           |
| EXPH 4995                                                              | Senior Seminar                              |           |
| <b>Total Hours</b>                                                     |                                             | <b>14</b> |