Perceptions of Learning in Food & Agricultural Chemistry

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AGR 300: Food and Agricultural Chemistry

- 1972 - Developed and taught to provide organic and biochemistry concepts to agriculture majors.
  - Concerns with similar chemistry taught in Chemistry department
  - Needed an applied chemistry with emphasis on fundamentals of biochemistry

Learning

- External environment will influence internal conditions of the learner

  Dewey, 1938

- Motivation – desire to learn
  - Extrinsic or intrinsic
    - Extrinsic – reward and punishment
    - Intrinsic – within and if affected by factors such as self-determination, curiosity, challenge and effort
      - Results in high-quality learning

Deci and Ryan 1985, 2000; Santrock, 2011

Assessment of Learning

- **Intrinsic Motivation Inventory (IMI)**
  - Comprises questions to determine a person's desire to learn
  - Ascertain information regarding the intrinsic motivation of learners
  - Utilizes the personal and emotional issues of the learner
    - Interest and enjoyment
    - Perceived confidence
    - Effort-importance
    - Pressure and tension
    - Value and usefulness

(Markland and hardy, 1997; Guay et al., 2000)

Methods

SURVEY INSTRUMENT

- Modified Intrinsic Motivation Inventory Survey Instrument
  - Administered day 1 and day 5
  - Part 1 – Intrinsic Motivation
    - 5 sections – Interest & Enjoyment, Perceived Competence, Effort & Importance, Pressure & Tension, Value & Usefulness
    - 39 questions
    - Likert scale – 1 = not true; 7 = very true
  - Part 2 – Technical & Interpersonal Skills
    - 17 questions; sorted into soft vs hard skills
    - Likert scale 1 = highly skilled; 5 = not skilled
  - Part 3 – Demographic Information
    - 7 questions

Methods

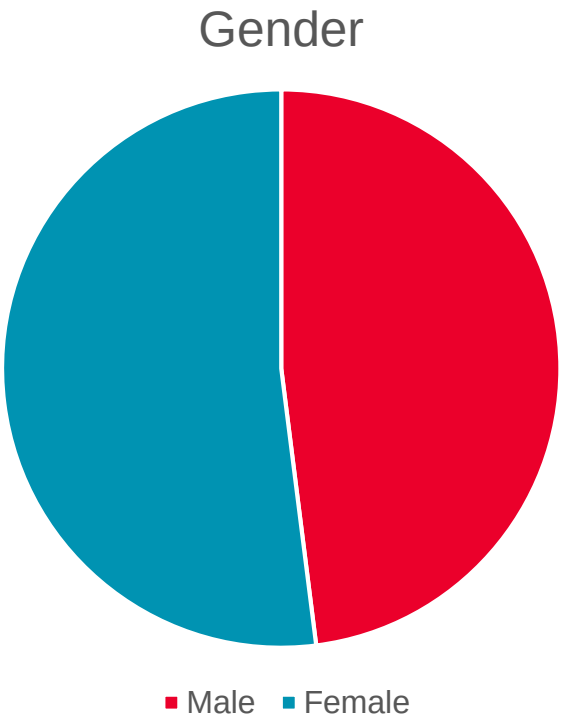
DATA ANALYSIS

- Pre-and post-test results compared using paired t-tests

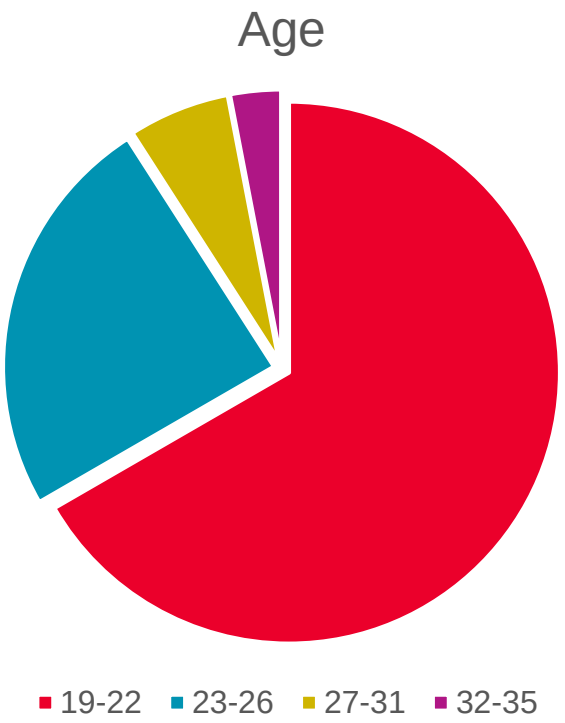
- Relationships between IMI responses and student demographics assessed using Chi-squared analysis

Results

STUDENT DEMOGRAPHICS



N = 98



N = 95

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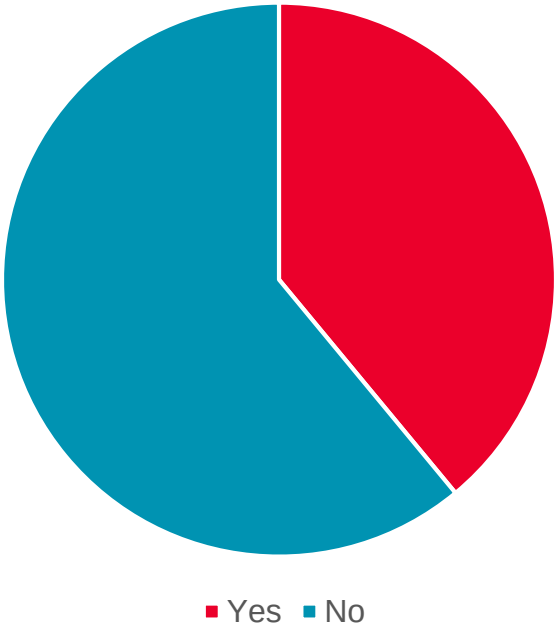
Results

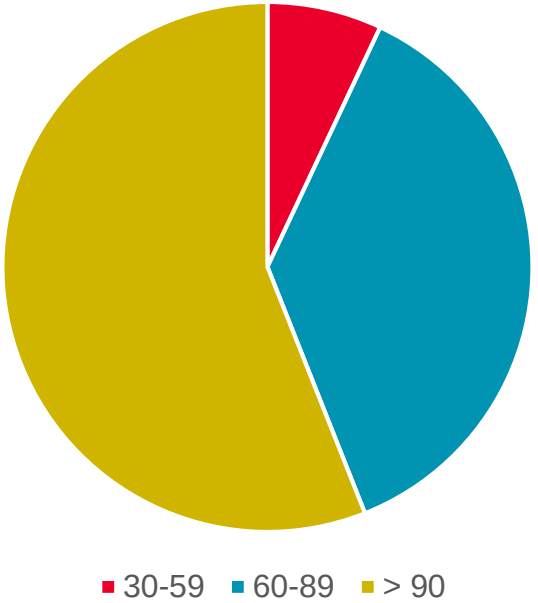
STUDENT DEMOGRAPHICS

First Generation*



N = 89

Credit Hours Completed

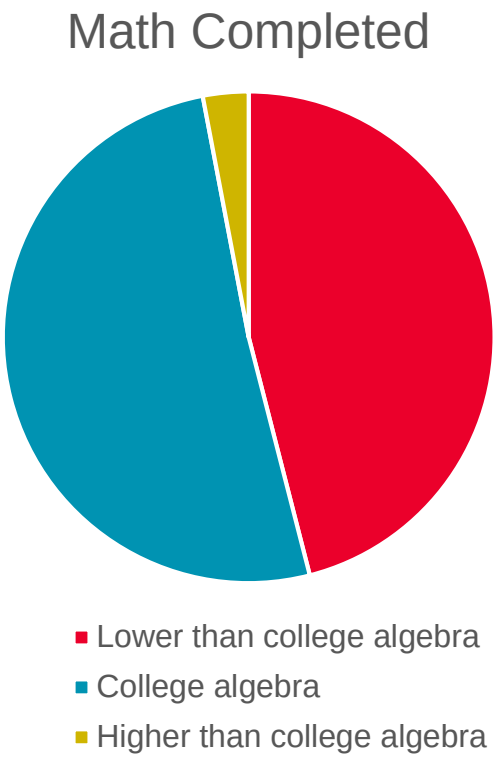


N = 98

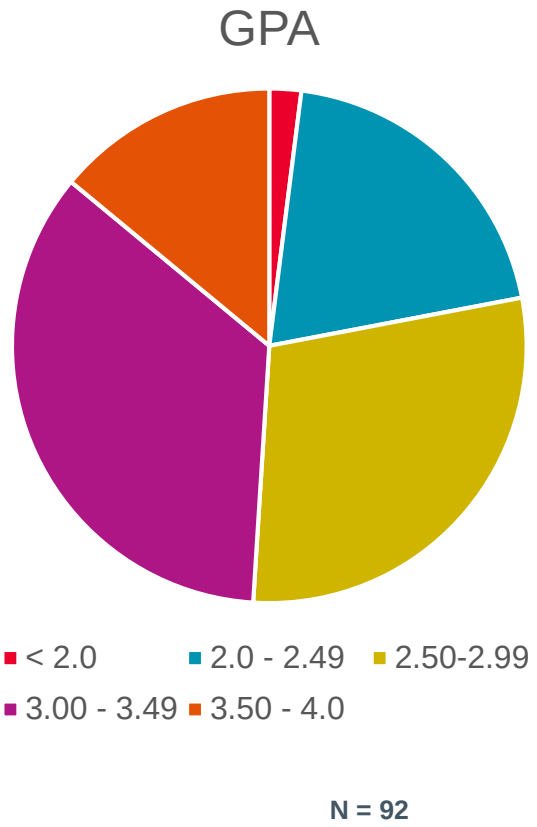
*Self-reported

Results

STUDENT DEMOGRAPHICS



N = 93



N = 92

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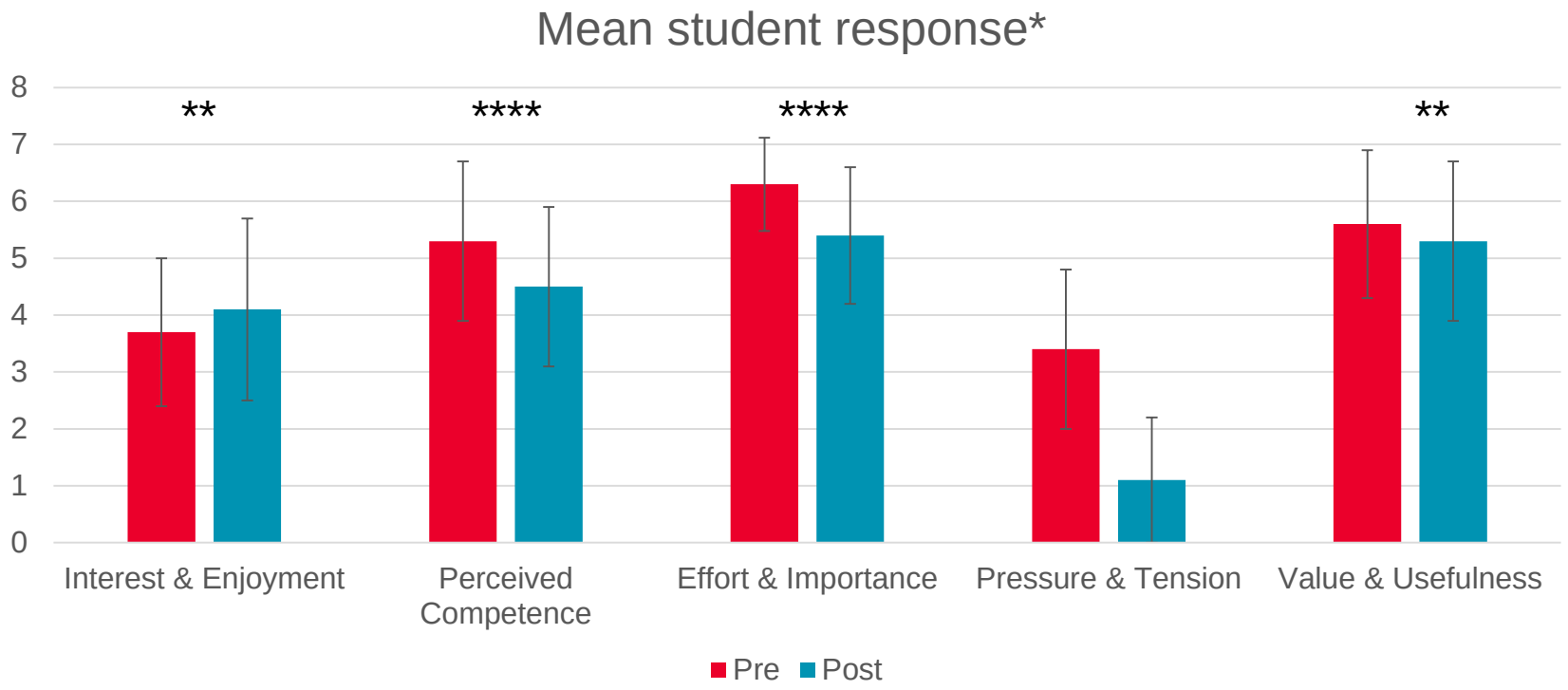
Results

COURSE IMPACT ON INTRINSIC MOTIVATION



*1 = Not true at all; 7 = Very true
**p < 0.10
***p < 0.05
****p < 0.01

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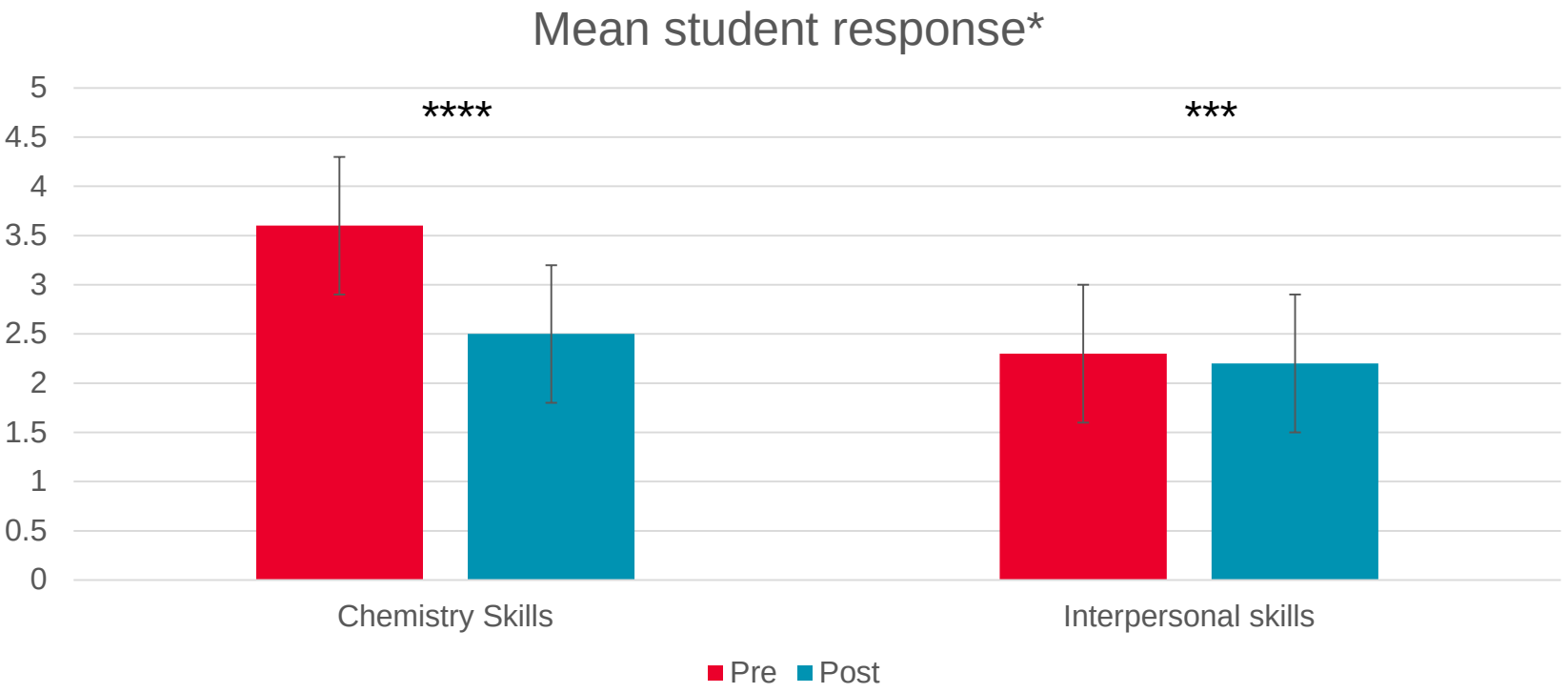
Results

COURSE IMPACT ON SKILLS



*1 = highly skilled; 5 = Not skilled
**p < 0.10
***p < 0.05
****p < 0.01

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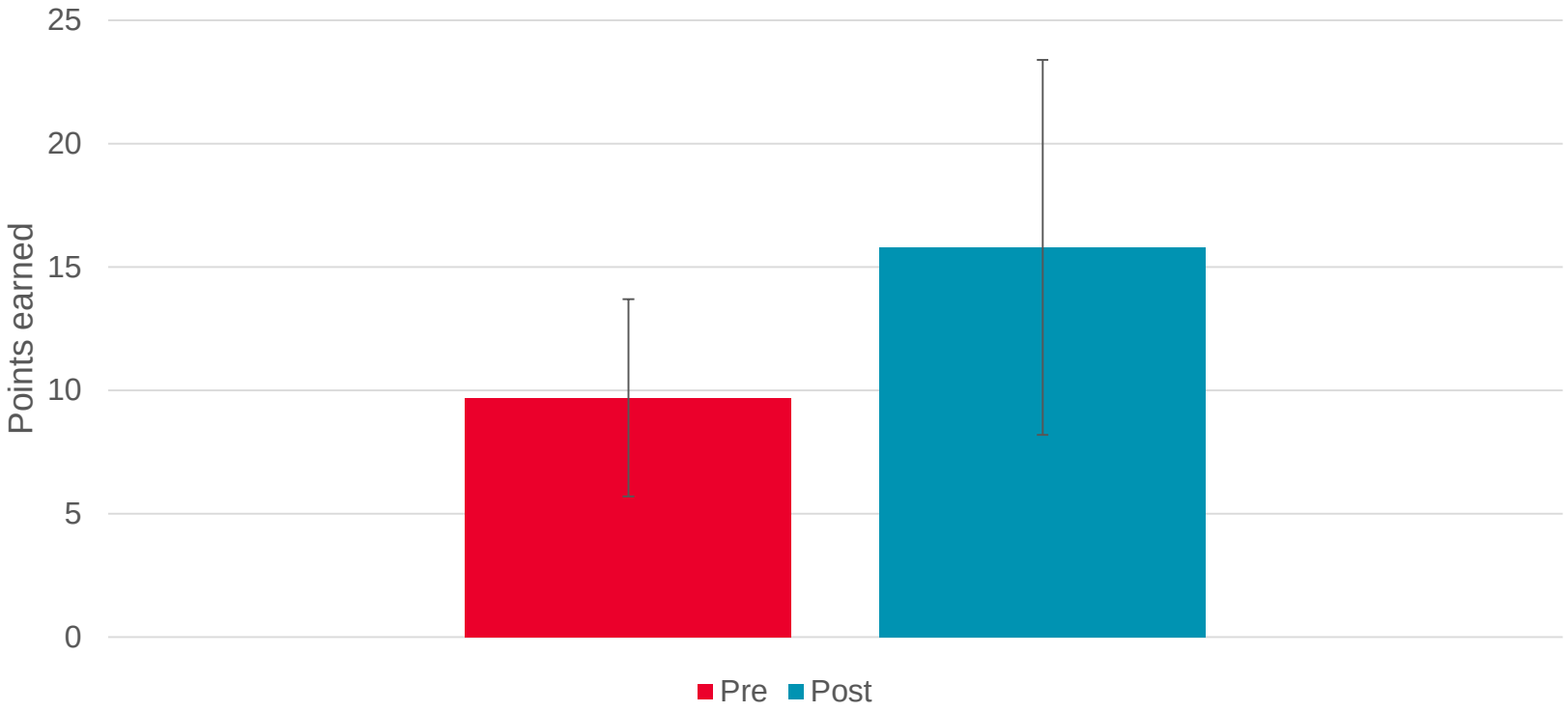
Results

COURSE IMPACT CONTENT KNOWLEDGE



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p < 0.001

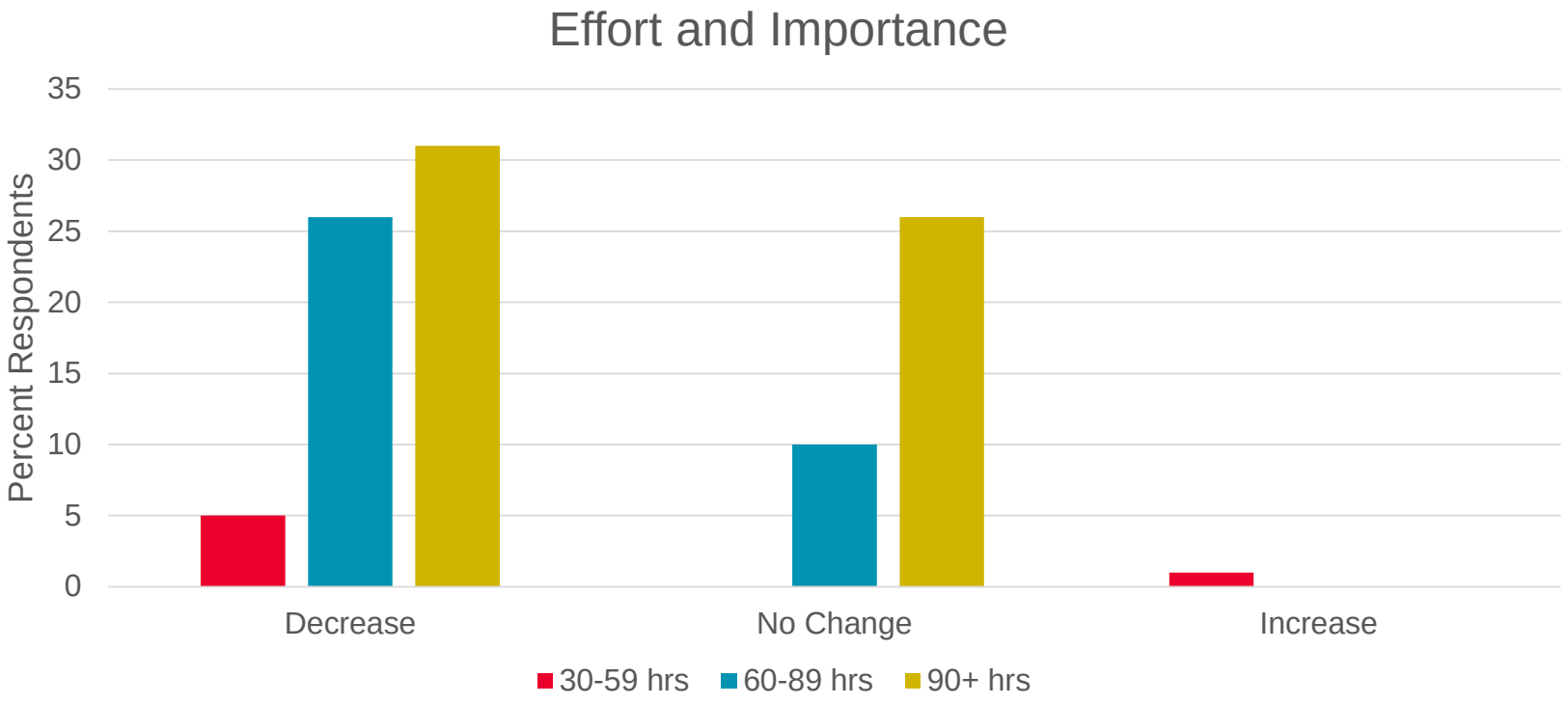
Results

RELATIONSHIP WITH STUDENT CREDIT HOURS

N = 77
$\chi 2$ = 0.07

Results

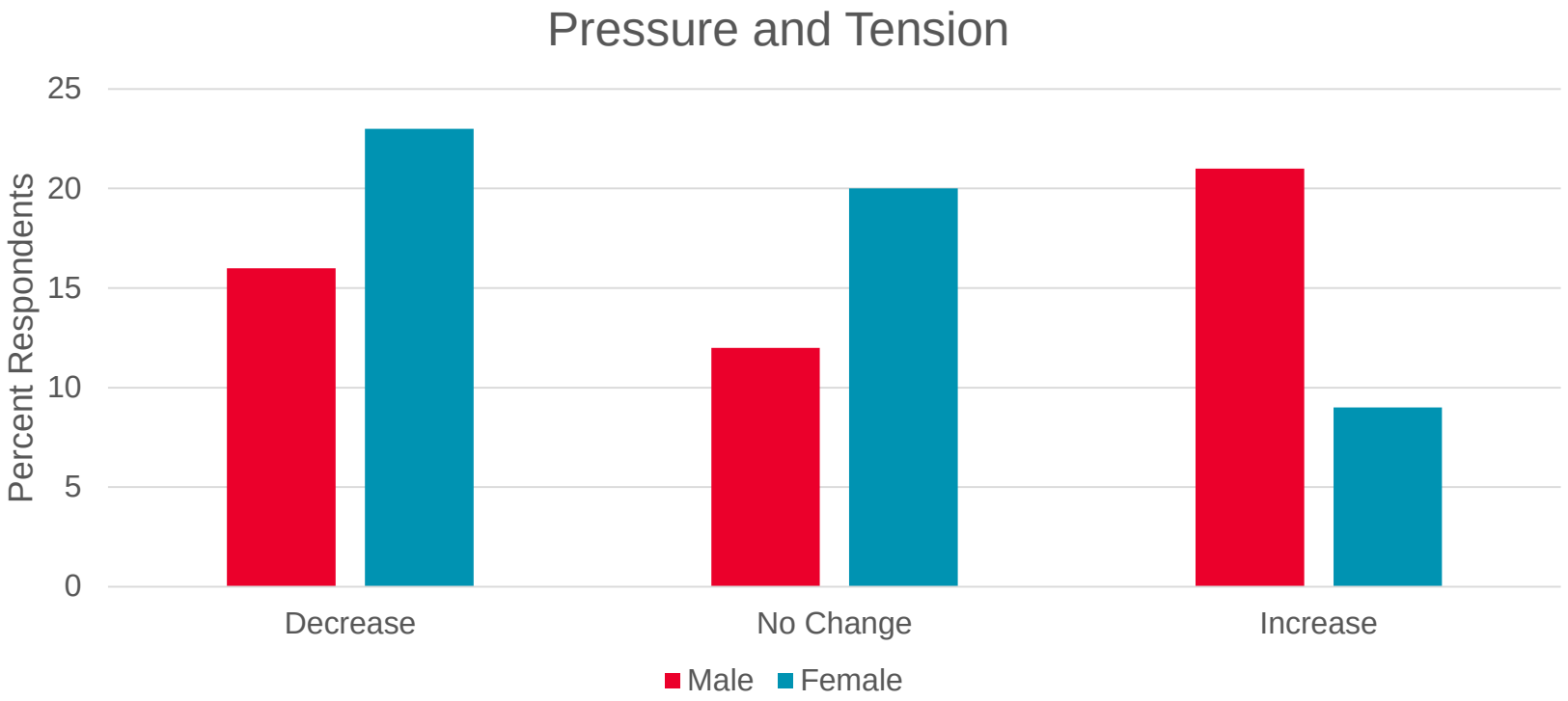
RELATIONSHIP WITH STUDENT CREDIT HOURS



N = 77
$\chi 2$ = **0.001**

Results

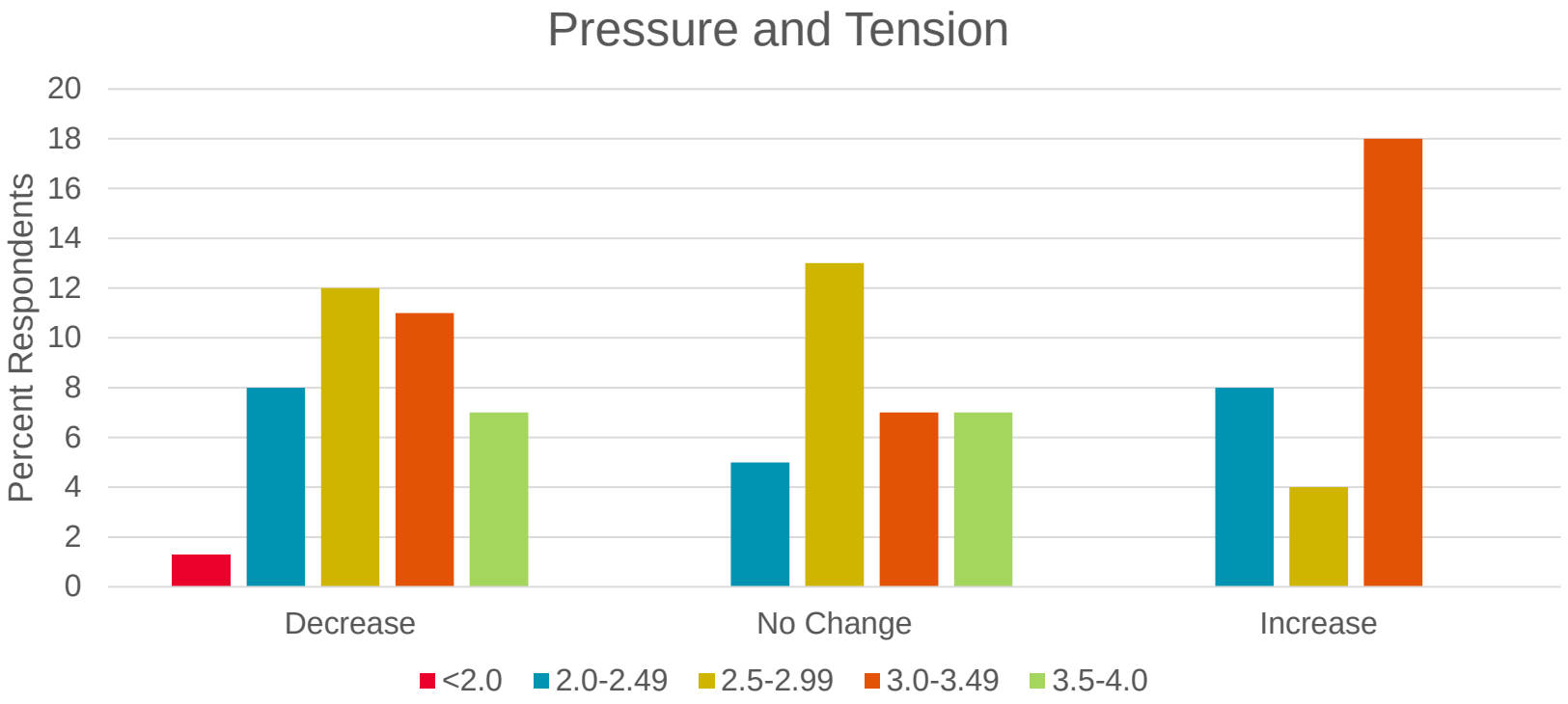
RELATIONSHIP WITH STUDENT GENDER



N = 77
$\chi 2$ = 0.05

Results

RELATIONSHIP WITH STUDENT GPA



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N = 77
$\chi 2$ = 0.04

Final Thoughts

COURSE IN TRANSITION

- Started as applied organic and biochemistry
- Moved into mirroring organic chemistry
- Moving towards a blend of the two
- 2017/2018 data has not been analyzed
- Ongoing study to determine what skills are needed by animal science and agronomy students