



ESSC12001 *Exercise and Sport Physiology*

Term 1 - 2023

Profile information current as at 30/04/2024 02:53 pm

All details in this unit profile for ESSC12001 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

This unit examines responses and adaptations of various physiological body systems to exercise. Specifically, you will learn the physiological mechanisms underpinning acute and chronic changes in the metabolic, pulmonary, cardiovascular, endocrine, and neuromuscular systems as a response to exercise. Furthermore, you will learn how physiological function relating to exercise changes across the lifespan and in different environments. You will also develop practical skills in conducting and interpreting laboratory and field tests assessing physiological function, fitness, and performance.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Pre-requisites For CG85 Bachelor of Exercise and Sport Sciences students: BMSC11001 Human Body Systems 1 AND BMSC11002 Human Body Systems 2 AND ESSC11001 Physical Activity, Fitness and Health For CG93 Bachelor of Medical Science students: BMSC11001 Human Body Systems 1 AND BMSC11002 Human Body Systems 2 For CB85 Bachelor of Physiotherapy students: BMSC11007 Medical Anatomy and Physiology 1 AND BMSC11008 Medical Anatomy and Physiology 2 For CC13 Bachelor of Education (Secondary) students: ESSC11001 Physical Activity, Fitness and Health AND ESSC11003 Skill Acquisition and Movement

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 1 - 2023

- Cairns
- Mackay City
- Mixed Mode
- Rockhampton

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Online Test**

Weighting: 20%

2. **On-campus Activity**

Weighting: Pass/Fail

3. **Written Assessment**

Weighting: 40%

4. **Examination**

Weighting: 40%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student and Unit Teaching Evaluation data

Feedback

The relevance of the unit, including the utility of the knowledge and skills covered, is not overly clear to students from all disciplines.

Recommendation

It is recommended that discipline-specific scope of practices, example scenarios, and research findings from exercise and sport science, physiotherapy, and education settings will be incorporated in lectures, practical classes, and assessment questions to strengthen the relevance of the unit to students.

Feedback from Student and Unit Teaching Evaluation feedback

Feedback

The single set of questions within the practice quiz given each week limits the ability of students to undertake multiple practice attempts leading into the actual online quizzes.

Recommendation

It is recommended that additional questions will be included within practice quizzes each week to ensure students can complete multiple practice attempts and receive different questions for each attempt in preparation for the actual online quizzes.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Explain the individual and integrated changes that occur in different physiological body systems in response to acute and chronic exercise
2. Describe how physiological responses relating to exercise change across the lifespan and in different environments
3. Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes		
	1	2	3
1 - Online Test - 20%	•	•	
2 - Written Assessment - 40%			•
3 - Examination - 40%	•	•	
4 - On-campus Activity - 0%			•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes		
	1	2	3
1 - Communication	•	•	•
2 - Problem Solving	•	•	•
3 - Critical Thinking	•	•	•
4 - Information Literacy	•	•	•
5 - Team Work			•
6 - Information Technology Competence	•	•	•
7 - Cross Cultural Competence			•
8 - Ethical practice			•
9 - Social Innovation			
10 - Aboriginal and Torres Strait Islander Cultures			

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Online Test - 20%	•	•	•	•		•				
2 - Written Assessment - 40%	•	•	•	•	•	•		•		
3 - Examination - 40%	•	•	•	•		•				
4 - On-campus Activity - 0%	•				•		•	•		

Textbooks and Resources

Textbooks

ESSC12001

Prescribed

Exercise Physiology

Edition: 9th (2022)

Authors: McArdle, W., Katch, F., and Katch, V.

Lippincott Williams & Wilkins

Philadelphia, PA, USA

ISBN: 9781975159993

Binding: Hardcover

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Computer
- MS Office
- Calculator

Referencing Style

All submissions for this unit must use the referencing style: [American Psychological Association 7th Edition \(APA 7th edition\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Aaron Scanlan Unit Coordinator

a.scanlan@cqu.edu.au

Schedule

Week 1 - Module 1 - 06 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 1: Introduction and exercise screening		
Topic 1. Unit introduction and requirements		
Topic 2. What is exercise and sport physiology?		
Topic 3. Risks of exercise		
Topic 4. Pre-exercise health screening		
	Adult Pre-Exercise Screening System and Guidelines provided on unit Moodle site.	

Week 2 - Module 2 - 13 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Module 2: Exercise metabolism

Topic 1. Energy transfer during exercise

Topic 2. Anaerobic energy systems

Topic 3. Aerobic energy system

Topic 4. Macronutrient energy release

Topic 5. Factors affecting macronutrient release

Topic 6. Measurement of energy use

McArdle, Katch, & Katch. (2022).

Exercise Physiology: Nutrition, Energy and Human Performance (9th ed.). New York, NY:

Lippincott Williams & Wilkins.

Chapters 5, 6, and 8.

Online quiz 1 opens at 9:00 am AEST on Thursday 16 March

Week 3 - Module 3 - 20 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 3: Pulmonary and cardiovascular responses to exercise		
Topic 1. Pulmonary system physiology	McArdle, Katch, & Katch. (2022). <i>Exercise Physiology: Nutrition, Energy and Human Performance</i> (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 12-17.	
Topic 2. Pulmonary system responses to exercise		Online quiz 2 opens at 9:00 am AEST on Thursday 23 March
Topic 3. Acid-base regulation		
Topic 4. Cardiovascular system physiology		
Topic 5. Cardiovascular system responses to exercise		

Week 4 - Module 4 - 27 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 4: Endocrine and neuromuscular responses to exercise		
Topic 1. Endocrine system physiology	McArdle, Katch, & Katch. (2022). <i>Exercise Physiology: Nutrition, Energy and Human Performance</i> (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 18-20 and 22.	
Topic 2. Endocrine system responses to exercise		Online quiz 3 opens at 9:00 am AEST on Thursday 30 March
Topic 3. Neuromuscular system physiology		
Topic 4. Neuromuscular system responses to exercise		

Week 5 - Module 5 - 03 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
Module 5: Training thresholds, principles, and adaptations		
Topic 1. Oxygen uptake kinetics	McArdle, Katch, & Katch. (2022). <i>Exercise Physiology: Nutrition, Energy and Human Performance</i> (9th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 7, 14, 21, and 22.	
Topic 2. Performance thresholds		Online quiz 4 opens at 9:00 am AEST on Thursday 6 April
Topic 3. Exercise training principles		
Topic 4. Adaptations to exercise training		

Vacation Week - 10 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - Module 6 - 17 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Module 6: Environmental and lifespan exercise responses

Topic 1. Exercise responses to altitude

Topic 2. Thermoregulation in the body

Topic 3. Exercise responses to heat and cold

Topic 4. Exercise considerations in children

Topic 5. Exercise considerations according to sex

Topic 6. Exercise considerations with age

McArdle, Katch, & Katch. (2015). *Exercise Physiology: Nutrition, Energy and Human Performance* (8th ed.). New York, NY: Lippincott Williams & Wilkins. Chapters 21, 24, 25, and 31.

Online quiz 5 opens at 9:00 am AEST on Thursday 20 April

Practical block 1 for Physiotherapy students at the Rockhampton North campus from Friday 21 April 9:00 am to Saturday 22 April 1:30 pm AEST

Week 7 - Practical blocks - 24 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Practical block 2 for Mackay students at the Mackay City Campus from Thursday 27 April 9:00 am to Friday 28 April 1:30 pm AEST

Week 8 - Practical blocks - 01 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Practical block 3 for Cairns students at the exercise and sport sciences laboratories at the Cairns basketball stadium from Thursday 4 May 9:00 am to Friday 5 May 1:30 pm AEST

Week 9 - Practical blocks - 08 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Practical block 4 for mixed-mode and Rockhampton Exercise and Sport Sciences, Education, and other students at the Rockhampton North campus from Tuesday 9 May 9:00 am to Wednesday 10 May 1:30 pm AEST Attendance and participation at practical block Due: Week 9 Wednesday (10 May 2023) 5:00 pm AEST

Week 10 - Review - 15 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
Review lecture		
Topic 1. Summary of major topics		
Topic 2. Review of practice exam questions		
Topic 3. Issues and tips for practical workbook		
Topic 4. Exam preparation and tips		Online quizzes Due: Week 10 Friday (19 May 2023) 5:00 pm AEST

Week 11 - Self-directed study - 22 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		

Week 12 - Self-directed study - 29 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
No lecture		Practical Workbook Due: Week 12 Friday (2 June 2023) 5:00 pm AEST

Review/Exam Week - 05 Jun 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 12 Jun 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Term Specific Information

This unit includes compulsory on-campus practical activities. You must attend the practical block specific to your enrolment and course as outlined below. If you prefer to attend an alternate session to that specified for your enrolment and course, please contact the Unit Coordinator to discuss attendance at an alternative practical block.

Students enrolled in Physiotherapy via Mixed Mode (MIX) and Rockhampton (ROK) are required to attend the practical block scheduled on the Rockhampton North Campus (Building 81, Exercise and Sport Sciences Laboratories) on Friday 21 April and Saturday 22 April. Please see the CQUniversity Handbook and the ESSC12001 Moodle site for up-to-date information.

Students enrolled on-campus in Mackay (MKY) in any course are required to attend the practical block scheduled on the Mackay City Campus (Building 4, Exercise and Sport Sciences Laboratories) on Thursday 27 April and Friday 28 April. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

Students enrolled on-campus in Cairns (CNS) in any course are required to attend the practical block scheduled on the Cairns campus (Exercise and Sport Sciences Laboratories located at the Cairns Basketball Association Headquarters) on Thursday 4 May and Friday 5 May. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

Students enrolled in Exercise and Sport Sciences, Education, and other courses via Mixed Mode (MIX) or on-campus in Rockhampton are required to attend the practical block scheduled on the Rockhampton North Campus (Building 81, Exercise and Sport Sciences Laboratories) on Tuesday 9 May and Wednesday 10 May. Please see the CQUniversity Handbook and the unit Moodle site for up-to-date information.

Assessment Tasks

1 Online quizzes

Assessment Type

Online Test

Task Description

You will be required to complete five online quizzes, with a separate quiz developed for specific modules. Online quiz 1 will assess knowledge of the content covered in module 2; online quiz 2 will

assess knowledge of the content covered in module 3; online quiz 3 will assess knowledge of the content covered in module 4; online quiz 4 will assess knowledge of the content covered in module 5; and online quiz 5 will assess knowledge of the content covered in module 6. Each online quiz will consist of 16 randomly-selected questions from a wider bank of 30 questions. Questions will be relevantly distributed across all topics in each module.

Each online quiz will open at 9:00 am AEST on Thursday following the scheduled lecture for the corresponding module and all online quizzes will close at the same time in week 10 (Friday 19 May 5:00 pm AEST). You will have a 25-minute time limit to complete each online quiz upon commencing. Questions will be in multiple-choice and fill-in-the-blank formats.

You must log onto Moodle after each online quiz is opened and complete all online quizzes before the closing time. You can only attempt each online quiz once and each must be completed in a single session. Online quizzes should be completed on a computer, as attempting them on a smartphone can result in your session being ended in the event of a phone call or notification. You cannot save your answers and return to online quizzes at a later time. In the absence of an approved extension, there will be no late submissions allowed for any of the online quizzes.

Assessment Due Date

Week 10 Friday (19 May 2023) 5:00 pm AEST

In the absence of an approved extension, no attempts after the due date will be permitted and a score of zero will be awarded.

Return Date to Students

Week 10 Friday (19 May 2023)

You will receive the overall result for each online quiz upon completion; however, you will see detailed feedback regarding the correct answers for each question in each online quiz upon their closure.

Weighting

20%

Assessment Criteria

Each online quiz will have an equal contribution to your overall unit grade. Together, the five online quizzes will comprise 20% of your overall grade.

There will be 16 questions per online test, with each question allocated 1 mark. Each question in each online quiz will be graded as correct or incorrect.

For questions with fill-in-the-blank responses, you should take care to ensure accurate spelling (Australian English) and correct grammar are used given answers are spelling- and grammar-sensitive.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Submission Instructions

Attempting and submitting each online quiz is performed via the unit Moodle site. You are required to complete each online quiz within the specified times that they are open. Online quizzes should be completed on a computer, as attempting them on a smartphone can result in your session being ended in the event of a phone call or notification.

Learning Outcomes Assessed

- Explain the individual and integrated changes that occur in different physiological body systems in response to acute and chronic exercise
- Describe how physiological responses relating to exercise change across the lifespan and in different environments

Graduate Attributes

- Communication
- Problem Solving

- Critical Thinking
- Information Literacy
- Information Technology Competence

2 Attendance and participation at practical block

Assessment Type

On-campus Activity

Task Description

This assessment involves compulsory attendance and participation in the on-campus practical activities involved in the unit. You are required to attend and participate in one of the scheduled practical blocks. Different blocks are available depending on your mode of enrolment and course of study. Further details regarding these blocks can be found in the Term Specific Information section of this Unit Profile, on the unit Moodle site, or via the CQUniversity Handbook.

Assessment Due Date

Week 9 Wednesday (10 May 2023) 5:00 pm AEST

You will successfully complete this assessment item following attendance and participation at your designated practical block.

Return Date to Students

Week 9 Wednesday (10 May 2023)

You will immediately pass this assessment following attendance and participation at your designated practical block.

Weighting

Pass/Fail

Minimum mark or grade

You must pass this assessment item to pass the unit overall.

Assessment Criteria

Attendance at an on-campus practical block with sufficient participation will result in a passing grade for this assessment. Failure to attend and adequately participate in a practical block may result in failing this assessment item, and being unable to pass this unit. Attendance at all practical activities will be assessed through attendance records documented by staff managing the sessions.

If you miss any part of the practical block without an approved reason, there will not be an opportunity to simply catch up at any time. The Assessment Policy and Procedure (Higher Education Coursework) outlines acceptable reasons for adjusting assessment. If you do not attend part of the practical block and provide a valid reason with supporting documentation, then an attempt to make alternate arrangements will be made in consultation with the Unit Coordinator.

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Offline

Submission Instructions

Attendance and participation will involve physical completion of practical activities. No documentation is required to be submitted.

Learning Outcomes Assessed

- Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

Graduate Attributes

- Communication
- Team Work
- Cross Cultural Competence
- Ethical practice

3 Practical Workbook

Assessment Type

Written Assessment

Task Description

When completing the practical activities during a practical block in this unit, you will be required to complete a series of tasks involving physiological measurement.

You will need to document the completion of practical activities by filling out a practical workbook available on the unit Moodle site.

The practical workbook will require you to physically complete the practical activities, record collected data for various tasks, perform calculations with collected data, interpret and critically analyse your findings, and answer relevant questions.

Assessment Due Date

Week 12 Friday (2 June 2023) 5:00 pm AEST

In the absence of an approved extension, any submissions received after the due date will incur penalties in accordance with CQUniversity Assessment Policy and Procedure (Higher Education Coursework).

Return Date to Students

Exam Week Friday (16 June 2023)

Grades and feedback for the Practical Workbook will be made available on the unit Moodle site no later than the set return date.

Weighting

40%

Assessment Criteria

The Practical Workbook is designed to evaluate your ability to use relevant equipment, collect physiological and performance data, and apply knowledge to interpret findings. Marks will be allocated to the different activities completed for the following: accurate recording of collected data, presentation of graphical information, analyses using collected data, use of correct terminology, correct responses to questions, correct written interpretation of results, and referencing. The Practical Workbook will be graded out of 400 marks equally divided into the following practical sessions:

1. Health screening and anthropometry (80 marks)
2. Exercise intensity, efficiency, and substrate utilisation (80 marks)
3. Spirometry and electrocardiography (80 marks)
4. High-performance testing for anaerobic and aerobic fitness (80 marks)
5. Thermoregulatory responses to exercise (80 marks)

Referencing Style

- [American Psychological Association 7th Edition \(APA 7th edition\)](#)

Submission

Online

Submission Instructions

You are required to submit a completed copy of the Practical Workbook as a .doc or .docx file on the unit Moodle site. You may also submit supplementary documents showing your calculations for relevant practical tasks as .xls, .xlsx, or image files. All submissions are to be completed individually.

Learning Outcomes Assessed

- Collect and interpret physiological measurements obtained during laboratory and field exercise tests.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Ethical practice

Examination

Outline

Complete an invigilated examination.

Date

During the examination period at a CQUniversity examination centre.

Weighting

40%

Length

180 minutes

Exam Conditions

Closed Book.

Materials

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Calculator - non-programmable, no text retrieval, silent only

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

**Be Honest**

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

**Seek Help**

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

**Produce Original Work**

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem