

HULL ADULT EDUCATION CENTRE STANDARDS AND PROCEDURES

For EVALUATIONS FOR CERTIFICATION And COURSE SYLLABUS

SUBJECT/DEPARTMENT: SCIENCES / OPTIONS

TEACHERS RESPONSIBLE FOR EXAM INVIGILATION: PAUL LAWLESS

STANDARDS IN ORDER OF THE ASSESSMENT PROCESS¹

STEP 1 : PROCEDURES BEFORE THE EXAM

1.1 CRITERIA/EVIDENCE OF SUPPORT FOR LEARNING REQUIRED FOR STUDENT TO WRITE THE EVALUATION FOR CERTIFICATION: STUDENT MUST DEMONSTRATE COMPETENCIES TO BE EVALUATED IN THE FINAL EXAM THROUGH FORMATIVE ASSIGNMENTS AND EVALUATIONS

1.2 SPECIAL EXAM CONDITIONS²:

THE CENTRE'S ADMINISTRATION IS AUTHORIZED TO IMPLEMENT THE MEASURES BELOW FOR ADULTS WITH SPECIAL NEEDS. A REPORT ANALYZING THE ADULT'S SITUATION MUST BE INCLUDED IN THE ADULT'S FILE. THE RELEVANCE OF THE MEASURE IN TERMS OF THE ADULT'S SPECIFIC NEED, AS RECOGNIZED BY WQSB COMPLEMENTARY SERVICES PERSONNEL, MUST BE INDICATED IN THE ADULT'S FILE.

- THE ADULT MUST USE THIS MEASURE REGULARLY AND THE ADULT MUST HAVE BEEN INVOLVED IN THE DECISION TO USE THIS MEASURE.
- A TOOL MUST NEVER PERFORM THE TASK FOR THE ADULT.
- THE ADULT MUST BE CONTINUOUSLY MONITORED SO THAT IT CAN BE CONFIRMED ON HIS OR HER FINAL COPY THAT HE OR SHE HAS USED THE AUTHORIZED MEASURE.
- EXTENDING THE TIME ALLOTTED FOR THE EXAMINATION BY UP TO ONE THIRD OF THE TIME NORMALLY ALLOWED. THE EXAMINATION MUST, HOWEVER, BE ADMINISTERED IN A SINGLE DAY AND CERTAIN ARRANGEMENTS MUST BE MADE TO ENSURE THAT THE TIME IS EXTENDED WITHOUT THE ADULT COMING INTO CONTACT WITH OTHER ADULT LEARNERS DURING LUNCHTIME OR BREAKS.
- ALLOWING THE PRESENCE OF AN ATTENDANT (INTERPRETER, INVIGILATOR, ETC.) WHO PROVIDES THE ADULT WITH THE NECESSARY ASSISTANCE RELATIVE TO THE SPECIFIC NEEDS IDENTIFIED IN THE ADULT'S FILE. THE ATTENDANT MUST NOT ASK ANY LEADING QUESTIONS, CLARIFY QUESTIONS BY EXPLAINING THEM, MAKE SUGGESTIONS THAT MIGHT INFLUENCE THE ADULT'S ANSWERS, CORRECT SPELLING OR GRAMMAR OR MAKE ANY CHANGES WHATSOEVER TO THE ADULT'S ANSWERS.

¹ LOOK FOR ANY SANCTIONS RELATED TO "GEA" (GENERAL EDUCATION ADULT) IN *Administrative Guide for the Certification of Studies and Management of Ministerial Examinations*, Chapter 4 "Evaluation of Scholastic Learning" and Chapter 5 "Support Measures for the Evaluation of Learning" in http://www.education.gouv.qc.ca/fileadmin/site_web/documents/dpse/sanction/Guide-sanction-2015_ang.pdf

² Refer to 5.2.2 "Support Measures" in *ibid.* or 5.2.2 "Mesures d'adaptation pour l'évaluation des apprentissages" *Guide intégré 2015*

- THE ATTENDANT MAY READ AN EXAMINATION TO THE ADULT, EXCEPT WHEN THE READING COMPETENCY IS BEING EVALUATED IN THE LANGUAGE OF INSTRUCTION.
- ALLOWING STUDENTS TO USE A READING AID (E.G. VOICE SYNTHESIZER) AND A WRITING AID (E.G. GRAMMAR AND SPELLING SOFTWARE, WORD PREDICTION SOFTWARE) FOR THE MINISTERIAL EXAMINATIONS (INCLUDING READING COMPREHENSION EXAMINATIONS IN THE LANGUAGE OF INSTRUCTION).
- ANY VOICE RECOGNITION FUNCTION MUST BE DE-ACTIVATED FOR THE DURATION OF THE EXAMINATION THAT EVALUATES THE WRITING COMPETENCY.
- ALLOWING ADULTS TO USE VARIOUS WRITING IMPLEMENTS.
- ALLOWING ADULTS TO GIVE THEIR ANSWERS USING A TAPE RECORDER.
- ALLOWING ADULTS TO USE A READING AID SUCH AS A MONITOR, MAGNIFYING GLASS OR INCLINED READING STAND.
- ALLOWING ADULTS TO TAKE THE EXAMINATION IN AN ISOLATED LOCATION, WITH SUPERVISION.

1.3 IDENTIFICATION OF THE STUDENT'S NAME AND STUDENT NUMBER AND DATE OF EXAMINATION ON ALL STUDENT BOOKLETS AND MARK SUMMARIES OF ALL EXAMS. PAUL LAWLESS

1.4 STUDENT'S NAME MUST APPEAR ON COURSE ATTENDANCE LIST ON THE DATE S/HE WRITES THE COURSE EXAM. PAUL LAWLESS

1.5 SEQUENCING OF EXAM PARTS: SEQUENCING DEPENDENT UPON SPECIFIC EXAM INSTRUCTION. (SEE INDIVIDUAL COURSE SYLLABUS) .

1.6 PRESCRIBED TIME FOR ADMINISTERING EXAMS DEPENDENT ON THE SPECIFIC EXAM REQUIREMENTS. (SEE INDIVIDUAL COURSE SYLLABUS).

- PROCEDURES TO FOLLOW IF EXAM IS LONGER THAN 120 MINUTES: DEPENDING ON THE SPECIFICATION OF TIME ALLOWED FOR EACH EXAM PART, EVALUATION FOR CERTIFICATION MAY BE ADMINISTERED OVER TWO CLASS PERIODS.

1.7 EXAM ONLY CONDITIONS, IF APPLICABLE: IF FORMALLY REQUESTED, AND STUDENT HAS ACQUIRED THE COMPETENCIES SET AS THE COURSE OBJECTIVES.

1.8 CONFIDENTIALITY OF MATERIALS:

- DESIGNATED AREA(S) FOR EXAM WRITING: ALL COMPETENCIES TO BE EVALUATED ARE DONE IN IMMEDIATE PROXIMITY TO AND DIRECT SUPERVISION OF THE TEACHER.

1.9 THEFT OR DISAPPEARANCE OF :

- MINISTERIAL EXAM MATERIALS:

SHOULD A MINISTERIAL EXAMINATION BE STOLEN, THE EDUCATIONAL INSTITUTION MUST:

- PROMPTLY NOTIFY THE PERSON IN CHARGE OF THE CERTIFICATION OF STUDIES AND ADMINISTRATION OF MINISTERIAL EXAMINATIONS OF THE SITUATION
- PROMPTLY NOTIFY THE DIRECTOR OF THE DIRECTION DE LA SANCTION DES ÉTUDES, WHO, AFTER DISCUSSION WITH THE EDUCATIONAL INSTITUTION, WILL DECIDE ON THE IMMEDIATE COURSE OF ACTION
- SEND A WRITTEN REPORT TO THE DIRECTOR OF THE DIRECTION DE LA SANCTION DES ÉTUDES DESCRIBING THE CAUSES AND CIRCUMSTANCES OF THE THEFT
- WHEN A BREACH IN CONFIDENTIALITY IS BROUGHT TO THE ATTENTION OF A STAFF MEMBER OF A SCHOOL OR CENTRE, USE OF THIS MINISTERIAL EXAMINATION FOR THE PURPOSES OF EVALUATION OF LEARNING MUST STOP IMMEDIATELY.

- LOCAL EXAM MATERIALS:

A WRITTEN REPORT WILL BE SENT TO THE CENTRE DIRECTOR, AND THEN EXAM WILL BE ALTERED.

STEP 2: PROCEDURES DURING THE EVALUATION PROCESS

2.1 AUTHORIZED MATERIALS ALLOWED DURING EXAMINATIONS: ONLY THE MATERIALS SPECIFIED IN THE EXAMINATION ADMINISTRATION GUIDE, IN THE DEFINITIONS OF THE EVALUATION DOMAIN FOR GENERAL EDUCATION IN THE ADULT SECTOR OR IN THE INSTRUCTIONS ACCOMPANYING THE EXAMINATIONS ARE AUTHORIZED FOR USE WITH MINISTERIAL EXAMINATIONS. CALCULATORS WITH OR WITHOUT A GRAPHIC DISPLAY THAT ARE DESIGNED PRIMARILY TO PERFORM MATHEMATICAL CALCULATIONS MAY BE USED DURING MINISTERIAL EXAMINATIONS. HOWEVER, CALCULATORS WITH A COMPUTER ALGEBRA SYSTEM (CAS) ARE NOT PERMITTED BECAUSE STUDENTS CAN USE THEM, FOR EXAMPLE, TO FACTOR ALGEBRAIC EXPRESSIONS. THESE TYPES OF CALCULATORS ARE PERMITTED ONLY IF THE CAS IS DISABLED FOR THE EXAMINATION.

2.2 USE OF ELECTRONIC DEVICES AND CELLPHONES: NOT PERMITTED

2.3 ACADEMIC OFFENCES

CHEATING: WHEN A CANDIDATE IS DISCOVERED CHEATING OR DELIBERATELY ASSISTING ANOTHER PERSON, HIS OR HER COPY IS CONFISCATED AND S/HE IS ASKED TO LEAVE THE ROOM. THE FAIL CODE OR MARK OF 0 WILL BE TRANSMITTED TO THE MINISTRY. THE CENTRE WILL THEN DETERMINE WHETHER OR NOT, AND UNDER WHAT CONDITIONS, THE EVALUATION MAY BE RETAKEN. THE STUDENT MAY BE SUSPENDED FROM THE CENTRE SUBJECT TO ADMINISTRATIVE DISCRETION.

PLAGIARISM: PLAGIARISM WILL HAVE THE SAME CONSEQUENCES AS CHEATING.

STEP 3: PROCEDURES AFTER THE EVALUATION PROCESS:

3.1 MATERIALS TO BE COLLECTED FROM STUDENT: ALL ADULT BOOKLETS, RESOURCE BOOKLETS, AND NOTES WILL BE COLLECTED.

3.2 MARKING AND RECORDING EXAM RESULTS: EXAMS WILL BE MARKED IN ACCORDANCE WITH THE RULES FOR EACH EXAMINATION. CORRECTION KEYS (CRITERION-REFERENCED RUBRICS) WILL BE USED IN THEIR ENTIRETY AND OBSERVATION AND MARKING INSTRUCTIONS FROM THE EXAMINER'S BOOKLET WILL BE FOLLOWED.

3.3 COPYRIGHT PROCEDURES FOR EXAM MATERIALS, IF APPLICABLE. N/A

3.4 STUDENT PERFORMANCE CRITERIA (E.G. PASS/FAIL; 60% OVERALL)

WHEN AN EXAMINATION COMPRISES OF MORE THAN ONE COMPONENT, THE COMPREHENSIVE FINAL MARK IS CALCULATED BY ADDING THE POINTS FOR EACH OF THE COMPONENTS IN ACCORDANCE WITH THEIR RESPECTIVE WEIGHTING.

3.5 TRANSMISSION OF RESULTS:

- **DEADLINE FOR TRANSMISSION TO OFFICE: WITHIN 5 WORKING DAYS OF EXAM COMPLETION**
- **FORMAT OF ACADEMIC RESULTS SHEET: HAEC "STUDENT RESULTS" TEMPLATE**

FAILURE: SUBMIT THE MARK AND WRITE ECHEC.

COURSE COMPLETE: ONCE STUDENT HAS COMPLETED THE ENTIRE PROGRAM, INDICATE "COURSE COMPLETE" ON MARK TEMPLATE

ABANDON: AD

3.6 CONFIDENTIALITY OF RESULTS:

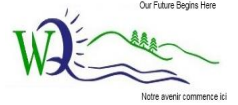
SHARING OF RESULTS WITH STUDENT:

- **AT NO TIME WILL EXAMINATIONS (CURRENT OR OBSOLETE) BE USED AS EVALUATION TO SUPPORT LEARNING OR AS CLASSROOM PRACTICE EXERCISES OR FOR PRETEST PURPOSES.**

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HULL ADULT EDUCATION CENTRE STANDARDS AND PROCEDURES EVALUATION FOR CERTIFICATION & COURSE SYLLABUS



- NO INFORMATION RELATED TO THE CONTENT OF THE EXAMINATIONS WILL BE DIVULGED TO STUDENTS **BEFORE** THE EXAMINATIONS ARE ADMINISTERED.
- IN ORDER TO ENSURE THE INTEGRITY OF THE EXAMINATIONS, COPIES OF EXAMINATIONS AND RELATED MATERIALS (E.G. ANSWER SHEETS, WORK SHEETS, EVALUATION FORMS) MUST NEVER BE CORRECTED, SHOWN, GIVEN TO STUDENTS OR REVIEWED IN THEIR PRESENCE **AFTER** A MINISTERIAL EXAMINATION HAS BEEN ADMINISTERED. THIS IS TO ENSURE CONFIDENTIALITY AND EQUITY OF THE EVALUATION IN THE EVENT THAT IT IS USED AGAIN FOR A RETAKE, AS THERE ARE A LIMITED NUMBER OF VERSIONS OF EXAMINATIONS AVAILABLE.
- EXAMS WILL BE CARRIED IN SEALED ENVELOPES OR BOXES AND STORED IN A LOCKED CABINET.
- TEACHERS WILL INFORM THE STUDENT OF HIS OR HER RESULTS AND ADVISE WHICH EVALUATION CRITERIA THEY HAVE FAILED WITHOUT COMPROMISING THE CONFIDENTIALITY OF THE EXAM.

3.7 STORAGE OF WRITTEN EXAMS

STORAGE LOCATION OF MARKED EXAMS: LOCKED CABINET IN ADMINISTRATIVE OFFICE

LENGTH OF TIME TO STORE WRITTEN EXAMS: THREE YEARS

SHREDDING/DISPOSAL OF WRITTEN EXAMS: FOR EXAMS OLDER THAN 3 ACADEMIC SCHOOL YEARS, SHREDDING IS DONE ANNUALLY AT THE END OF SCHOOL YEAR BY A CERTIFIED COMPANY.

STEP 4: PROCEDURES FOR EVALUATION RETAKES

4.1 ENTITLEMENT TO RETAKES: ANY STUDENT WHO FAILS AN EXAM OR WHO WANTS TO IMPROVE HIS OR HER MARK MAY RETAKE THE EXAMINATION. WHEN THE D.E.D. ESTABLISHES COMPULSORY MINIMUM REQUIREMENTS FOR EACH DISTINCT PART OF THE EXAM, THE STUDENT WILL REDO THE PART THAT S/HE HAS FAILED.

4.2 REMEDIATION PROCESS BEFORE FIRST, SECOND, THIRD RETAKE: STUDENTS WILL UNDERGO REMEDIATION IN ACCORDANCE WITH WHATEVER COMPETENCIES NEED TO BE RE-EVALUATED.

TEACHERS RESPONSIBLE FOR PREPARING *HAEC STANDARDS & PROCEDURES*:

SCHOOL YEAR: 2017-2018

NAME(S): PAUL LAWLESS SIGNATURES: _____

DIRECTOR: MR. SCOTT CAVERS _____

DATE: AUGUST 30TH, 2017

ADULT EDUCATION SCIENCE COURSE DESCRIPTIONS

and

COURSE SYLLABUS

Biology Courses

It is recommended that the student seek counseling from Guidance Services to clarify if the three courses offered in Biology are prerequisites for admission to certain general and technical education programs at the college level and if any particular program requirements will be fulfilled by taking these courses.

The Secondary V Biology program includes the three courses which are prerequisite for admission to certain general and technical education programs at the college level.

The three courses are as follows:

BLG-5061-1 The Human Respiratory System

By learning concepts of anatomy and physiology, students will study the human respiratory system and the health problems associated with it.

This course covers:

- anatomical structures of the respiratory system
- pulmonary inhalation and exhalation mechanisms
- gas exchanges in lungs and cells
- health problems related to the respiratory system

Evaluation:

A. Type of Examination

The summative examination is a written examination administered at the end of the Course and counts for 100% of the final mark. It consists of structured-response and short-response items course in a single session lasting no more than 120 minutes.

B. Pass Mark

To pass the course, students must obtain a total of 60 out of 100.

BLG-5064-2 The Anatomy and Physiology of Cells

Concepts studied in this course include the anatomy, physiology and the function of cells, the basic units of life.

This course covers:

- plant and animal cell structures
- cell nutrition and excretion
- cell reproduction
- cellular respiration
- deoxyribonucleic (DNA) and ribonucleic (RNA) acids

Evaluation:

A. Type of Examination

There are three (3) modules; each module has an exam of 33.33 %

B. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

BLG-5065-2 The Transmission of Hereditary Characteristics

Concepts of anatomy, physiology and the transmission of human hereditary characteristics as well as the health problems associated with it.

This course covers:

- the transmission of hereditary characteristics
- problems associated with the transmission of hereditary characteristics

Evaluation:

A. Type of Examination

The summative examination is a written examination administered at the end of the course in a single session lasting no more than 120 minutes and counts for 100% of the final. It consists of structured-response and short-response items.

B. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Physics

It is recommended that the student seek counseling from Guidance Services to clarify if the Physics program is a prerequisite for admission to certain general and technical education programs at the college level and if any particular program requirements will be fulfilled by taking this course.

The Secondary V Physics program includes three 50-hour courses.

Optics PHS 5041-2

This course covers:

- the propagation of light;
- the behavior of light reflected from plane and curved mirrors;
- the behavior of light refracted by lenses and other substances;
- The electromagnetic spectrum and applications of its various ranges.

Evaluation

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 85% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has both a written and laboratory component administered in the laboratory in a single session lasting no more than 90 minutes and is worth 15% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.



Kinematics and Momentum PHS 5042-2

This course covers:

- the perception of motion and the concept of trajectory;
- Analysis of the trajectories of different moving objects;
- Analysis of rectilinear motion and rectilinear motion with uniform acceleration;
- Analysis of the two-dimensional motion of a projectile;
- Applications of the principle of conservation of momentum.

Evaluation

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 70% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has both a written and laboratory component administered in the laboratory in a single session lasting no more than 90 minutes and is worth 30% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Forces and Energy PHS 5043-2

This course covers:

- the concept of force and the consequences of applying force to an object;
- gravitational force and its characteristics;
- the motion of an object as a function of work, energy and the conservation of energy;
- friction between two surfaces and air resistance on objects in motion;
- Archimedes' principle;
- the extension of a spring and pressure;
- The operation of simple and compound machines.

Evaluation

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 70% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has both a written and laboratory component administered in the laboratory in a single session lasting no more than 120 minutes and is worth 30% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Physical Science

It is recommended that the student seek counseling from Guidance Services to clarify if the Physical Science program is a prerequisite for admission to certain general and technical education programs at the college level and if any particular program requirements will be fulfilled by taking this course.

This program is designed to heighten the awareness of students, in general education for adults, regarding the interaction between science, technology and society. The Physical Science program comprises three 50-hour courses which are:

Nuclear Energy: Energy in Matter PSC 4010-2

- Principles associated with the fundamental relationship between matter and energy.
- Atomic structure and the classification of elements.
- The various applications of nuclear energy in the energy, medical and military fields.
- The course raises the issue of the use of nuclear energy, notably to produce electricity.

Evaluation

A. Type of Examination

The summative evaluation consists of an examination in two parts.

The first part is a research project related to the student's ability to express an opinion based on facts and counts for 25% of the final mark and can be done during the course.

The second part is a written examination which must be taken in a single sitting of no more than 120 minutes and counts for 75% of the final mark. A periodic table of the elements including electronegativity indicators and a list of the names and formulas of the main polyatomic ions will be provided.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Electricity: What's the connection? PSC 4011-2

- Principles underlying electrical phenomena.
- The concepts of static electricity, dynamic electricity, magnetism and electromagnetism.
- Electric circuits and the steps involved in the production and use of electricity.
- consequences of the use of electricity
- The implications of the choice of a particular method of producing it.

Evaluation

A. Type of Examination

The summative evaluation consists of an examination in two parts. Both parts are given at the end of the course.

The first part is a written examination which must be taken in a single sitting of no more than 120 minutes and counts for 78% of the final mark.

The second part is a written examination which must be taken in a single sitting of no more than 90 minutes and counts for 22% of the final mark.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Ionic Phenomena: A Study of an Environmental Problem PSC 4012 - 2

- the principal concepts and phenomena related to chemistry,
- The problem of acid rain or that of water pollution caused by fertilizers and pesticides.
- The atomic model and the periodic table of the elements.
- Chemical bonds leading to the formation of compounds such as acids, bases and salts.
- The major factors behind acidification or pollution of bodies of water.

Evaluation

A. Type of Examination

The summative evaluation consists of an examination in two parts. Both parts are given at the end of the course.

The first part is a written examination which must be taken in a single sitting of no more than 120 minutes and counts for 76% of the final mark. A periodic table of the elements including electronegativity indicators and a list of the names and formulas of the main polyatomic ions will be provided.

The second part is a written examination which must be taken in a single sitting of no more than 90 minutes and counts for 24% of the final mark.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.

Chemistry

It is recommended that the student seek counseling from Guidance Services to clarify if the Chemistry program is a prerequisite for admission to certain general and technical education programs at the college level and if any particular program requirements will be fulfilled by taking this course.

The Secondary V Chemistry program which comprises three 50-hour courses, equivalent to the Chemistry 534 program offered in the youth sector.

Gases CHE 5041-2

This course covers:

- the properties of the states of matter and the general behavior of substances undergoing phase changes;
- the presence of gases in nature and their use by humans;
- the laws governing the behavior of gases;
- the ideal gas law and Dalton's law of partial pressures;
- The energy balance of a chemical reaction occurring in a gaseous state.

Evaluation

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 80% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has a written component and is administered in a single session lasting no more than 120 minutes and is worth 20% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.



Chemical Reactions 1: Energy and Chemical Dynamics

CHE 5042-2

This course covers:

- energy transfers related to phase changes, mixtures of substances at different temperatures, solutions or chemical reactions;
- the rate of chemical reactions and the factors on which it depends;
- the collision theory and the relationship between energy, the rate of a chemical reaction and the factors on which such a rate depends

Evaluation

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 75% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has both a written and laboratory component administered in the laboratory in a single session lasting no more than 90 minutes and is worth 25% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.



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Chemical Reactions 2: Equilibrium and Oxidation-Reduction

CHE 5043-2

This course covers:

- _ Qualitative and quantitative analysis of chemical equilibrium;
- _ Oxidation-reduction and the operation of electrochemical cells.

A. Type of Examination

The examination for purposes of summative evaluation will be administered at the end of the course. It consists of two parts:

- One part is a written examination written in a single session lasting no more than 180 minutes and is worth 70% of the course mark. It consists of restricted-response, short-answer or extended-response items.
- The other part has both a written and laboratory component administered in the laboratory in a single session lasting no more than 120 minutes and is worth 30% of the course mark.

Both parts of the examination are compulsory.

B. Characteristics of the Examinations.

Students are permitted to use a calculator and must be provided with formulas and appropriate information which may be required.

C. Pass Mark

To pass the course, students must obtain a combined total of 60 out of 100.