Forensic Science

20L

Prairie Valley School Division #208

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Acknowledgements

This course was developed with input from the following individuals:

Rationale

Prairie Valley School Division will offer an optional 20 level elective course based on student interest in the area of Forensic Science. Forensic Science 20L will consist of both theory and applied learning, and students will have opportunity to visit locations in Saskatchewan with connections and to build an understanding of forensic principles. As this course involves the use of scenarios, it is important to note that students are encouraged to utilize ethical and moral considerations and parameters when discussions take place (e.g. not making connections too close to personal or home lives). A locally developed course in Forensic Science will assist students in furthering their interest and knowledge, exposing them to career choices they had not considered previously. It is important for students to not only recognize the wide array of life and career choices available to them, but have opportunities to explore different career paths.

Globalization and change have a tremendous impact on today's society. Dealing with change and developing skills to exist in a world that is ever changing requires students to access opportunities to various career paths. While engaged in this course, students will interact and explore topics through inquiry, hands on activities and a variety of instructional strategies designed to create opportunities for practice and acquire skills and knowledge related to the field of Forensic Science.

Student interest and career development choices have been taken into consideration in offering this elective. It is highly recommended that adaptations be made for students within the introduction to meet specific student needs and learning levels.

Aim

Forensic Science 20L aims to provide students with knowledge, skills and abilities to analyze how collecting and interpreting evidence connects science with societal expectations. Students will use these skills to interpret forensic evidence and to gain an understanding of the importance of scientific procedures to real-world observations. Through exploration of this course, students will create a connection between the world of school and the world of work, including the development of the skills and abilities which encourage students to understand the field of forensics by using relevant provincial, national, and international examples.

Goals

Forensic Science 20L provides students at the secondary level with a broad, global perspective of the field of Forensics and what it involves as a study or discipline.

The goals of the Forensic Science 20L Course are to:
- Develop an understanding of the stages of a forensic investigation;
- Gain an awareness of how forensic investigations are based on the collection and analysis of trace evidence;
- Demonstrate the ability to analyze and evaluate human impression evidence;
- Recognize the importance of various techniques used to investigate acts of arson and explosions;
- Understand the role of collecting and analyzing documents and handwriting;

- Identify proper techniques and demonstrate an understanding of the role of criminal profiling ;
- Develop an appreciation for career paths involved in Forensics.
- Explore topics of personal interest related to forensic science.

Core Curriculum Initiatives

Adaptive Dimension
The adaptive dimension will be applied to student needs as they arise during the course. The strategy of Differentiated Instruction will be incorporated in the instructional approach to the course and may include provision and sharing of information through written, media, visual and oral presentations.

Career Development Competencies
Career development is an important component of the Forensic Science 20L course. Opportunities for students to explore careers related to this field have been included in the goals and outcomes of this course so that students are better able to make possible future plans related to the field of forensics.

Aboriginal Perspectives and Content
This course will offer opportunity for students to explore the science behind the study of forensics, but also to examine the beliefs and ways of knowing of First Nations people regarding creation of the earth and origin of animals and plants. In addition to the connections to knowledge, students will have opportunity to interact and work closely and respectfully with co-workers and fellow students of a variety of ethnicities, including First Nations, Metis, and Inuit.

Gender Equity
Gender equity will be addressed by discussing and demonstrating the fact that both males and females can pursue a career as a forensic scientist. Efforts will be taken to highlight role models and examples of those in the field of both genders.

Resource-based learning
Many of the resources are provided and the content is primarily resource and activity based. The instructor and the students will use a variety of resources when learning about key ideas for this course, including print, non-print and human resources.

Multicultural Education
Throughout school and career placement work opportunities, students are encouraged and guided to develop acceptance and sensitivity to various cultural backgrounds.

Broad Areas of Learning

Forensic Science 20L contributes to the Goals of Education through helping students achieve knowledge, skills, and attitudes related to the following:

Lifelong Learners

Students who are engaged in the study of theoretical knowledge and practical skills of the Forensic Science 20L course will build a positive disposition towards learning. Throughout their study students gain understandings, skills, and knowledge to become more aware of the study of forensics and develop an awareness of the competencies and knowledge base and the hands on skills associated with this job, should they decide to pursue it as a career option.

Sense of Self, Community, and Place

Interacting with others is inherent and necessary in many fields of study and forensics is no exception. The course is taught in a dynamic environment where students must recognize their own skills, abilities, and areas of growth. Students will develop a sense of their role in various communities they occupy as well as an awareness of the importance of team and respect for their communities.

Engaged Citizens

Students in Forensic Science 20L are required to develop competencies and skills to a predetermined level of expertise and to be engaged in finding solutions to problems related to current topics in the field. Their actions require engagement, self-motivation and proactive time management.

Cross-curricular Competencies

The Cross-curricular Competencies are four interrelated areas containing understandings, values, skills, and processes which are considered important for learning in all areas of study. These competencies are reflective of the Common Essential Learnings and are intended to be addressed in each areas of study at each grade level.

Developing Thinking

Students of this course are asked to construct meaning from the theory they are studying and be able to put that theory into practical use to solve problems and to come up with creative and effective solutions while out on the job or in the field. This will be done through specific learning activities throughout the course and opportunities to practice some of the hands-on portion of the skills critical to forensic science. A key skill that will also be developed in addition to learning how to apply the knowledge base in a practical sense is problem solving and experiential learning where students are asked to think critically and creatively. As such, they will be experiencing forensics through a variety of contexts: theoretically, in real-world examples, and through application through direct action. Good learners gain knowledge in all three contexts when solving problems.

Developing Identity and Interdependence

Developing a specific skill set requires both autonomy and collaboration, in different situations. Through reflection on one's own learning in the Forensic Science 20L course, students will develop and refine various skills and abilities, and test these skills by solving real problems and applying the knowledge they learn to hands on settings and situations.

Developing Literacies

Students enrolled in Forensic Science 20L will marshal a variety of literacies when solving problems and acquiring new skills and knowledge. Through their learning experience, all students will further develop literacies in technology, language, mathematics and science.

### *Developing Social Responsibility*

Forensic Science 20L is structured to require students to work to acquire skills and knowledge and then to demonstrate the hands on competencies required to show mastery. Students will participate in activities to improve their own skills set and also seek to help or learn from others by actively participating, understanding, listening and engaging in group activities.
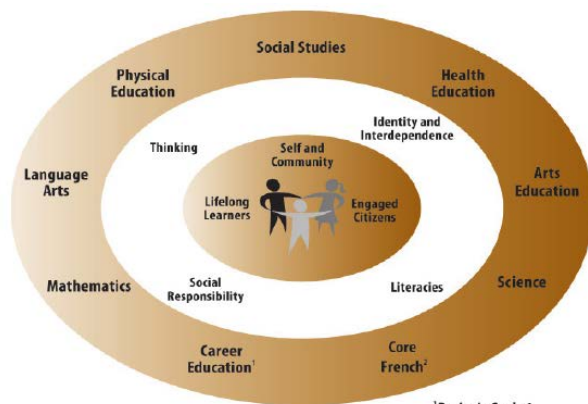
Inquiry

"Inquiry learning provides students with opportunities to build knowledge, abilities, and inquiring habits of mind that lead to deeper understanding of their world and human experience." (Career Education 9, 20L08, p. 8) Students who are involved in the Forensic Science 20L course will be given opportunity to learn through the inquiry process, by developing questions and seeking answers. As well, "[a]n important part of any inquiry process is student reflection on their learning and the documentation needed to assess the learning and make it visible." (Career Education 9, 2008, p. 8). Student documentation of their learning process in this locally developed Forensic Science 20L course may involve self-reflection and/or development of a portfolio, setting individual goals and documenting learning through acquisition of levels and various certificates for different skills.

Students who are engaged in inquiry are able to construct knowledge in order to deepen understanding of a particular topic and the ability to set goals and self-reflect on areas requiring growth. Also, students should be able to transfer newly constructed knowledge and skills to new circumstances. The teachers' job is to support and encourage students to manage time effectively and to develop a variety of skills needed to successfully complete the Forensic Science 20L course and to be successful in their chosen career.
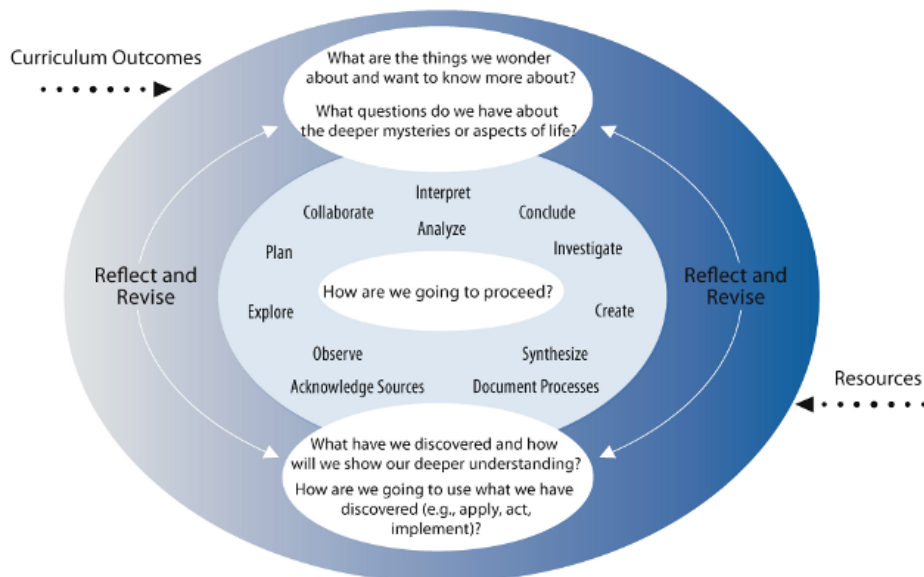
Forensic Science 20L Goals, Outcomes, and Indicators

Throughout this course, students will gain a fundamental understanding and knowledge of applied science as it relates to the field of Forensics as well as develop basic skills in the areas of observation, evidence preparation, and analysis.

Introduction to Forensic Science 20
FS20-IF1 Explore the roles, protocols and procedures involved in the initial stages of forensic investigations.
Trace Evidence
FS20-TE1 Investigate procedures used for collecting and analyzing various types of trace evidence, such as fibre, gunshot residue, paint, glass and blood.
FS20- TE2 Analyze the significance of trace evidence in forensic investigations.
FS20-TE3 Explore methodologies and techniques used by forensic scientists in blood spatter analysis.
Identification Science
FS20-IE1 Examine the tools and procedures used in the identification, collection and preservation of human impression evidence such as fingerprints, footprints, and bite marks.
FS20 – IE2 Analyze the forensically significant information obtained from human impression evidence, such as fingerprints, footprints, and bite marks.
Arson and Explosives
FS20-AE1 Explore the forensic science used in investigations involving arson and explosions.
Document Analysis
FS20-DA1 Examine methods and processes used in the analysis of the falsification and counterfeiting of documents.
Criminal Profiling
FS20-CP1 Investigate the significance of criminal profiling in forensic investigations.
Career Exploration
FS20-CE1 Analyze and explore forensic science related occupations in Saskatchewan, Canada and the world.
Student Directed Study
FS20-SDS1 Create and carry out a plan to explore one or more topics of personal interest relevant to Forensic Science 20.

Topic/Unit: Introduction to Forensic Science 20

Outcome	Indicators
FS20-IF1 Explore the roles, protocols and procedures involved in the initial stages of forensic investigations.	a. Pose questions about the roles and procedures important in forensic investigations. (K, S, A, STSE) b. Explore various disciplines of forensic science in Canada, such as anthropology, biology, chemistry, document, engineering, firearms, pathology, odontology, and toxicology. (K, A) c. Examine the roles and responsibilities of various individuals involved in the five commons stages of processing a crime scene (e.g., securing the scene, planning and organization, initial survey, photos and sketching, searching for evidence, securing and collecting evidence, and releasing the crime scene). (K, A, STSE) d. Investigate the skills required by crime scene investigators and forensic scientists. (K, A, S) e. Categorize evidence as real or demonstrative, physical or observational, accidental or class, and known or unknown. (K, S) f. Discuss the significance of the types of evidence in forensic investigations. (K, S, A, STSE) g. Investigate various techniques that may be used to collect physical evidence at a crime scene. (K, STSE) h. Investigate how to properly package, label and record collected evidence. (K, A, STSE) i. Explain how police canines are trained and used in various areas of forensic investigations. (K, STSE) j. Explore the contributions of police canines in historical forensic science cases. (K, A, STSE) k. Recognize the importance of the various procedures for documenting a crime scene (e.g., preparation of a police report, sketching, photographing, and logging of evidence and establishing a chain of custody). (K, A, STSE) l. Develop a scenario in which physical evidence and observational evidence support the identification of a victim or suspect. (K, A, S, STSE)

Topic/Unit: Trace Evidence

Outcome	Indicators
FS20-TE1 Investigate procedures used	a. Pose questions about what constitutes trace evidence at a crime scene. (K, S, A, STSE) b. Categorize examples of trace evidence as class or accidental. (S)

for collecting and analyzing various types of trace evidence, such as fibre, gunshot residue, paint, glass and blood.	c. Demonstrate an understanding of Locard's Exchange Principle. (K) d. Investigate methods for collecting paint, glass, fibre (e.g., visual collection, vacuum and tape lifting) and blood evidence (e.g., cutting, wet absorption, scraping, and tape lifting). (K, STSE) e. Demonstrate appropriate methods for collecting fibre evidence. (K, S) f. Investigate the characteristics (e.g., twisted, regular or irregular, and diameter) of various fibres (e.g., natural, synthetic, plant, animal and mineral) to determine a potential source. (K, STSE) g. Examine the unique properties of human and animal hair through microscopic investigation. (K, S, STSE) h. Identify the chemical components present in gunshot residue. (K) i. Explore the procedure for collecting and preserving gunshot residue (GSR) evidence, including the use of a GSR kit. (K, STSE) j. Investigate methods used to compare fibre evidence (e.g., comparison microscope, burn test, and tape edges matched using a document camera). (K, STSE) k. Collect, label and compare samples of trace evidence, including fibre, paint and glass. (K, S, A, STSE)
FS20- TE2 Analyze the significance of trace evidence in forensic investigations.	a. Discuss the evidentiary value of paint, glass and fibre analysis in forensic investigations. (K, A) b. Differentiate between the value of class and accidental trace evidence on forensic investigations. (K, A, STSE) c. Discuss how forensic science procedures have changed to minimize the occurrence of false positive and false negative test results. (K, STSE, A) d. Discuss the reliability of gunshot residue analysis. (K, STSE, A) e. Collaborate and create an original scenario of a crime scene involving various types of trace evidence, including their collection and analysis. (K, S, STSE, A)
FS20-TE3 Explore methodologies and techniques used by forensic scientists in blood spatter analysis.	a. Identify the basic physical (e.g., viscosity and surface tension) characteristics of blood involved in blood spatter analysis. (K) b. Identify characteristics (e.g., satellites, spines, and parent drops) commonly found in blood spatter. (K, S) c. Categorize blood spatter patterns as passive, projected or transfer based on appearance and cause. (K, S) d. Investigate the effect that height and velocity have on blood spatter patterns. (K, STSE) e. Analyze blood spatter patterns to predict the location of the injury, type of injury, and the movements and/or number of individuals involved in the incident. (K, S, STSE) f. Examine how blood spatter specialists estimate angle of impact, area of convergence and area of origin. (K)

	g. Analyze various blood spatter patterns to estimate the angle of impact, area of convergence and area of origin. (K, S, STSE)

Topic / Unit: Identification Science

Outcome	Indicators
FS20-IE1 Examine the tools and procedures used in the identification, collection and preservation of impression evidence such as fingerprints, footprints, and bite marks	a. Pose questions about the identification, collection and preservation of impression evidence. (K, S, A, STSE) b. Identify examples of impression evidence (e.g., latent, plastic or patent fingerprint impressions, bite marks, and footprints). (K) c. Categorize the major patterns (e.g., whorl, loop, and arch) and ridge characteristics (e.g., bifurcation, bridge, lake, and dot) of fingerprints (K). d. Investigate techniques used to locate and collect latent, patent and plastic fingerprints (K) e. Identify the information crime scene investigators can gain from footwear impressions including the type of footwear, tread and wear patterns. (K) f. Investigate the unique characteristics (e.g., toeprints, ridge details, measurements of footprints) of barefoot prints. (K) g. Explore the unique characteristics in bite marks such as elliptical/circular formation (K) h. Investigate techniques (e.g., casting and dusting used to collect impression evidence. (K, S, STSE) i. Research emerging technologies related to identifying, collecting and preserving impression evidence. (K, S, A, STSE)

FS20-IE2 Analyze the forensically significant information obtained from human impression evidence, such as fingerprints, footprints, and bite marks.	a. Examine the role of national databases (e.g., Fingerprint Database and National DNA Databank [NDDB]) and records (dental, shoe) for impression evidence. (K, A, STSE) b. Classify examples of impression evidence as accidental or class. (K, S) c. Analyze the use of impression evidence (e.g., fingerprints, footwear, and dental) in forensic investigations (K, A, STSE) d. Evaluate the application of impression investigation in forensic investigations using historical and/or fictional scenarios. (K, S, A, STSE) e. Design and carry out an investigation to examine the collection of impression evidence from a scene (e.g., fingerprinting, footprint casting and bite marks). (K, S, A, STSE) f. Research professional opinions surrounding the validity of impression evidence in forensic investigations. (K, S, A, STSE) g. Discuss ethical concerns (e.g., refusal to provide a sample and obtaining a sample without consent) related to collecting known samples to compare to unknown impression evidence. (K, A, STSE)
Resources	●

Topic / Unit: Arson and Explosives	
Outcome	**Indicators**
FS20-AE1 Explore the forensic science used in investigations involving arson	a. Differentiate between the chemistry of combustion and explosions. (K) b. Compare the roles of fuels and accelerants in a fire. (K) c. Identify the characteristics that indicate a fire may be suspicious (e.g., odours, two or more points of origin, and inverted v-patterns) (K)

and explosions.	d. Investigate the four areas of arson investigation including, proof of incendiarism, proof of opportunity, proof of motive and circumstantial evidence. (K, STSE)
	e. Identify various motives for arson and explosion crimes including, revenge, excitement, vandalism, crime concealment and profit. (K, A, STSE)
	f. Investigate how burn patterns (e.g., char patterns, doughnut patterns, V-patterns, ignitable liquid pour patterns, and chimney effects) can predict point(s) of origin, use of accelerants, and the path of the fire. (K, STSE)
	g. Describe techniques used to analyze fire scene evidence such as, control evidence, the headspace technique, vapour concentration testing, metal oxide sensors, and photo ionization detectors. (K)
	h. Investigate methods used to detect explosives including, bomb detection dogs, bomb detection robots, X-ray machines, ion scan, and metal detectors. (K, STSE)
	i. Identify the types of explosives and detonation techniques commonly encountered in forensic investigations. (K)
	j. Discuss psychological similarities between historical arsonists (e.g., John Orr, David Berkowitz, Paul Keller and Thomas Sweatt) and/or bombers (e.g., Timothy McVeigh, Ted Kaczynski and George Metesky). (K, A, STSE)

Topic / Unit: Document Analysis	
Outcome	**Indicators**
FS20-DA1 Examine methods and processes used in the analysis of the falsification and counterfeiting of documents.	a. Describe the ways in which documents can be authenticated (e.g., creator of the document, time frame of creation, materials used, and machine/source of the document) for the purpose of forensic investigations. (K)
	b. Explore characteristics (e.g., obliterations, erasures, and page substitutions) that could indicate document alteration. (K)
	c. Identify the role of indicators such as ink, paper, writing tools, stamps, printers and toners in document analysis. (K)
	d. Discuss the role of document analysis in investigating specific crimes (e.g., forgeries, counterfeiting, identity theft, and extortion). (K, A)
	e. Conduct an experiment using ink chromatography to analyze handwritten and inkjet printed documents. (K, S, STSE)
	f. Research emerging technologies related to document analysis. (K, S, A, STSE)

Topic/Unit: Criminal Profiling	
Outcome	Indicators
FS20-CP1 Investigate the significance of criminal profiling in forensic investigations.	a. Identify factors (e.g., location of crime, victim, state of the scene, and time of day) that contribute to the development of a criminal profile. (K, STSE) b. Recognize an individual's behavioural and personality characteristics, such as intelligence, age, gender, marital status, childhood experiences and occupation, that may be identified in a criminal profile. (K, A) c. Critique the role of culture and race in the development of criminal profiles. (K, A, STSE) d. Investigate how psychological characteristics of offenders (i.e., serial killers, mass murderers, and spree killers) are used to predict future behavioral patterns. (K, STSE) e. Distinguish between organized, disorganized and combination offenders. (K) f. Investigate the application of criminal profiling including, reducing the number of suspects, linking multiple crimes to a specific offender and predicting an offender's future actions. (K, A, STSE) g. Apply profiling concepts such as distance decay, buffer zones and the Least Effort Principle in a profiling scenario. (K, S) h. Investigate the evolution of criminal profiling as a tool in forensic investigations, including the evaluation of the accuracy of criminal profiles. (K, A, STSE) i. Research historical cases where criminal profiling was a prominent tool during investigation. (K, A, STSE) j. Recognize the contribution of notable profilers (e.g., Thomas Bond, Walter C. Langer, Robert Keppel, Richard Walter, and David Canter) to the field of criminal profiling. (K, A, STSE) k. Research emerging technologies related to criminal profiling. (K, A, S, STSE)

Career Exploration	
Outcome	Indicators
FS20-CE1 Analyze and explore	a. Generate a list of occupations that require a background in forensic science through research and/or participation in events such as a career fair. (K, S)

forensic-science related occupations in Saskatchewan, Canada and the world.	b. Explore the connection between topics in Forensic Science 20 and occupations of personal interest. (S, A, STSE)
	c. Identify which forensic-science related occupations are facing shortages and which are oversubscribed locally, regionally and/or nationally. (STSE, S, K, A)
	d. Examine the roles, responsibilities, educational qualifications and personal and professional qualities common to people involved in forensic-science related jobs. (S, A)
	e. Communicate research findings related to forensic-science occupations through creation of a display, brochure, video, presentation software, website or orally. (K, S, A, STSE)
	f. Synthesize acquired knowledge to develop a plan to attain a job of the student's interest in the forensic science field. (S, A)
	g. Examine the role of self-regulating professional bodies (e.g., college, association society, board and council) in the forensic science field. (K)
	h. Reflect upon personal suitability or unsuitability for a specific forensic-science related occupation considering criteria such as:
	• initial and continuing educational requirements;
	• duties and skills required for this occupation;
	• the work environment, including typical hours and shifts worked and typical locations;
	• current wages received in Saskatchewan and how these compare to the rest of Canada;
	• physical, mental and emotional stresses related to this occupation;
	• workplace hazards and safety considerations;
	• other occupations with which they interact;
	• professional and/or licensing requirements in Canada and Saskatchewan, and;
	• future trends impacting the occupation. (K, S, A, STSE)

Student Directed Study	
Outcome	Indicators
FS20-SDS1 Create and carry	a. Design a scientific investigation related to a topic of study in Forensic Science 20 that includes a testable question, a hypothesis,

out a plan to explore one or more topics of personal interest relevant to Forensic Science 20.	an experimental design that will test the hypothesis and detailed procedures for collecting and analyzing data. (STSE, S). b. Conduct an experiment following established scientific protocols to investigate a question of interest related to one or more of the topics of Forensic Science 20. (S, K, A, STSE) c. Assemble and reflect on a portfolio that demonstrates understanding of a forensic science topic of interest to the student. (S, A) d. Design, construct and evaluate the effectiveness of a device, model or technique that demonstrates the scientific principles underlying a concept related to a Forensic Science 20 topic. (STSE, S) e. Debate an issue related to forensic science, including developing materials to support the arguments for and against a position. (S, A, K) f. Present the results of student-directed research through a display, presentation, performance, demonstration, song, game, commercial, fine art representation or research paper. (S) g. Construct a tool (e.g., rubric, checklist, self-evaluation form or peer-evaluation form) to assess the process and products involved in a student-directed study. (S, A)

Organizational Approaches to Forensic Science 20L

The Forensic Science 20L course requires 100 hours of instruction. Ideally the course should provide a balance between learning the theory and the opportunity to practice the theory in a hands-on situation to demonstrate skill acquisition.

Instructional Strategies

While the teacher and students are ultimately responsible for determining which instructional strategies work best for the class, this course will benefit from an employment of a wide variety of instructional strategies.

Student-Directed Research
Whether for research reports or in an inquiry-based activity, students may research information on topics of their choosing. As is the case with group work, student-directed research is required for some goals, so practice throughout the course will allow the teacher to assess and improve upon students' skills in researching and assessing information.

Use of Technology
Students should be encouraged to employ a variety of technology as they complete work. This could include presentation (like PowerPoint or Prezi) and communication (like Skype or FaceTime) software, but should not be limited to these uses. For example, students might want to develop websites, blogs, or social networking accounts to inform others or their work. They might also use Google Docs, Office 365, or other file sharing software to improve group collaboration. They may find even novel solutions to broader problems using smart phone apps.

Problem-Based Learning
Similar to project-based learning, problem-based learning involves students researching and solving hypothetical (but realistic) problems. Especially for teachers new to the inquiry learning approach, problem-based learning provides greater teacher control over planning, researching, and problem solving stages, and it allows teachers to target specific outcomes and indicators with a single activity.

Access to Expert Resources
Through a partnership, students will have access to a qualified forensic specialist from the university throughout participation in this course. Communication may take place through the discussion forum, email, Skype, or by phone.

Field trips and Experiential Learning
A wealth of locations throughout Saskatchewan can provide support for Forensic Science 20L, including the University of Regina, the University of Saskatchewan, and local police services. Arranging Field trips and possible opportunities to observe a specialist working

in the field of study would be ideal either as activities to support various outcomes, or as culminating activities to be used at the end of the course. Student learning in this area could be enhanced through field trips, field observations, job shadowing, interactive presentations such as on-site symposiums or demonstrations, and through discussions, both in person and through online forums.

Assessment and Evaluation of Student Learning

Students will be engaged in a number of activities, projects, investigations, quizzes, etc. for which regular and effective feedback will be provided. Assessment and evaluation practices will be in line with good practice for formative and summative assessment and with instructional strategies and outcomes.

Forensic Science 30L and all effective curricula require that a variety of different assessment tools be utilized including:

Self- and Peer-Assessments – Regular assessment of one's own work or the work of others can serve similar roles as the portfolio: is acts as assessment for learning if done throughout an assignment and can indicate which tasks in a group assignment were performed by each student.

Progress Reports and Checklists – Use of checklist and progress reports will assist with student acquisition of skills and/or group progress and can foster accountability, particularly of each student, to the rest of their group. They can serve as important formative and/or summative assessments of work accomplished and can offer hard evidence of both group and individual contributions.

Quizzes and Tests – At times, depending on the concept, quizzes and tests may be employed to solidify meaning and check for understanding of concepts.

Performance or stations – teacher use of stations or performance assessments will be used to showcase student acquisition of skills.

Presentations – Group presentations can serve as proposals, progress reports, or final reflections. Student performance in the presentation could be a formative or summative assessment of communication skills.

Portfolio – Having students construct a learning or showcase portfolio throughout the course is one method of encouraging assessment for learning, since students must critically examine their own work to determine which best demonstrate their skills and identify areas of improvement. Portfolios, especially those that require students to assess their entries, can allow teachers to identify individual student work in group projects.

Instructional Materials and Resources

Print Resources

Book	Bertino, A., and Bertino, P. (2011). *Forensic Science: Fundamentals and Investigations, 2nd Edition (2nd ed.). Scotia, NY: Cengage Learning.*
Page 24	FS20-IF1b	Crime Scene Investigation Team
Pages 24-27	FS20-IF1c	Seven C's of crime scene investigation

Internet Resources

Outcome	Website/Address
FS20-IF1b	https://www.csfs.ca/
FS20-TE1 & 3	http://www.forensicsciencesimplified.org/blood/principles.html
FS20-IE2	http://www.rcmp-grc.gc.ca/en/investigators-guide-national-forensic-laboratory-services
FS20-DA1	http://www.forensicsciencesimplified.org/docs/principles.html https://www.csfs.ca/what-we-do/disciplines-sections/documents/
FS20-CP1	https://en.wikipedia.org/wiki/Offender_profiling
FS20-CE1	https://www.cbc.ca/news2/interactives/i-am-indigenous-2017/williams.html https://www.thestar.com/news/insight/2016/09/25/meet-canadas-first-aboriginal-forensic-pathologist.html https://www.csfs.ca/student-zone/career-resources/ https://www.crime-scene-investigator.net/forensic-science-in-canada.pdf https://www.csfs.ca/wp-content/uploads/2016/05/booklet2007.pdf

Non Print and Human Resources