



TENTATIVE—SUBJECT TO CHANGE

**RADT 1200 Principles of Radiation Biology and Protection
COURSE SYLLABUS
Summer Semester 2019**

COURSE INFORMATION

Credit Hours/Minutes: 2 / 1500
Campus/Class Location: Vidalia / Room 743
Class Meets: Tuesdays / 8:30 AM – 11:50 AM
Course Reference Number (CRN): 60179

INSTRUCTOR CONTACT INFORMATION

Instructor Name: Tara Powell
Email Address: [Tara Powell \(tpowell@southeasterntech.edu\)](mailto:tpowell@southeasterntech.edu)
Campus/Office Location: Vidalia / Room 714
Office Hours: Wednesdays 8:00 AM – 12:00
Phone: 912-538-3152
Fax Number: 912-538-3106
Tutoring Hours (if applicable): available upon request

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's [Catalog and Handbook \(http://www.southeasterntech.edu/student-affairs/catalog-handbook.php\)](http://www.southeasterntech.edu/student-affairs/catalog-handbook.php).

REQUIRED TEXT

Sherer, M., Visconti, P., Ritenour, E., & Haynes, K., (2018) Radiation Protection in Medical Radiography (8th edition).

REQUIRED SUPPLIES & SOFTWARE

Pens, pencils, highlighter, three ring notebook

Students should not share login credentials with others and should change passwords periodically to maintain security.

COURSE DESCRIPTION

Provides instruction on the principles of cell radiation interaction. Radiation effects on cells and factors affecting cell response are presented. Acute and chronic effects of radiation are discussed

MAJOR COURSE COMPETENCIES

Major course competencies include radiation detection and measurement; patient protection; personnel

protection; absorbed dose equivalencies; agencies and regulations; introduction to radiation biology; cell anatomy; radiation/cell interaction; and the effects of radiation

PREREQUISITE(S)

Program Admission

COURSE OUTLINE

	Learning Outcomes		
Order	Description	Learning Domain	Level of Learning
1.0	Radiation Detection and Measurement		
1.1	Define terms used to measure ionizing radiation such as rem, roentgen, rad, C/kg, Sievert, and gray.	Cognitive	Knowledge
1.2	Distinguish between units of measure for ionizing radiation.	Cognitive	Analysis
1.3	Discuss personnel monitoring devices in terms of types, purposes, characteristics, advantages, and disadvantages.	Cognitive	Comprehension
1.4	List types of ionization chambers.	Cognitive	Knowledge
1.5	Describe the theory of operation for ionization chambers.	Cognitive	Comprehension
1.6	List types and sources of natural radiation and manmade radiation.	Cognitive	Knowledge
2.0	Patient Protection		
2.1	Explain the relationship of beam limiting devices to patient radiation protection.	Cognitive	Comprehension
2.2	Discuss added and inherent filtration in terms of the effect on patient dosage.	Cognitive	Comprehension
2.3	Explain the purpose and importance of patient shielding.	Cognitive	Comprehension
2.4	Given a list of patients shielding devices and radiographic procedures, correlate the method of shielding to the radiographic procedure.	Cognitive	Application
2.5	Explain the relationship of exposure factors to patient dosage. Cognitive Comprehension	Cognitive	Comprehension
2.6	Given various radiographic procedures, identify how to use different IRs that will result in an optimum diagnostic image with the minimum radiation exposure to the patient.	Cognitive	Application
2.7	Discuss methods to avoid repeat radiographs.	Cognitive	Comprehension
2.8	Explain how to reduce patient dose when performing stationary or mobile fluoroscopy, and mobile radiography.	Cognitive	Comprehension
3.0	Personnel Protection		
3.1	Explain the use of primary and secondary radiation barriers.	Cognitive	Comprehension
3.2	Discuss protection devices influencing room construction and design.	Cognitive	Comprehension
3.3	Clarify controlled areas from uncontrolled areas.	Cognitive	Analysis
3.4	Explain how radiographic equipment/techniques are used to reduce personnel exposure during radiographic, fluoroscopic, mobile, and surgical procedures.	Cognitive	Comprehension

	Learning Outcomes		
3.5	Explain how personnel protective devices are used to reduce personnel exposure during radiographic, fluoroscopic, mobile, and surgical procedures.	Cognitive	Comprehension
3.6	Explain how patient restraint devices are used to reduce personnel exposure during radiographic, fluoroscopic, mobile, and surgical procedures.	Cognitive	Comprehension
4.0	Absorbed Dose Equivalencies		
4.1	Define effective dose equivalent.	Cognitive	Knowledge
4.2	Determine dose equivalent in terms of SI and traditional units when given the quality factor and absorbed dose for different ionizing radiations.	Cognitive	Application
4.3	Discuss current National Council on Radiation Protection and Measurements recommendations for occupational and general public	Cognitive	Comprehension
4.4	Describe dose limits related to the declared pregnant radiographer.	Cognitive	Comprehension
5.0	Agencies and Regulations		
5.1	Identify federal and state regulatory agencies.	Cognitive	Knowledge
5.2	Discuss historical perspectives relating to radiation protection.	Cognitive	Comprehension
5.3	Explain two purposes of Public Law 97-35.	Cognitive	Comprehension
5.4	Discuss state regulations regarding patient and personnel protection.	Cognitive	Comprehension
5.5	Identify components of 10 CFR part 20 related to personnel monitoring and dose limits.	Cognitive	Knowledge
5.6	Describe the "ALARA" concept in regards to personnel and patient protection.	Cognitive	Comprehension
5.7	Describe radiographer radiation protection responsibilities as they pertain to patients, personnel, and the public.	Cognitive	Comprehension
6.0	Introduction to Radiation Biology		
6.1	Discuss historical evidence of the effects of radiation.	Cognitive	Comprehension
6.2	Describe concepts relating to the interaction of radiation with matter.	Cognitive	Comprehension
6.3	Discuss the information concerning the human body as it relates to atomic structure.	Cognitive	Comprehension
7.0	Cell Anatomy		
7.1	Review the structures involved in cellular anatomy.	Cognitive	Comprehension
7.2	Describe the importance of the macromolecules in terms of cellular function.	Cognitive	Comprehension
8.0	Radiation/Cell Interaction		
8.1	Define radiation/cell interaction.	Cognitive	Knowledge
8.2	Discuss the effects of radiation on cells related to direct and indirect effect.	Cognitive	Comprehension
8.3	Delineate the four-basic radiation dose-response curves.	Cognitive	Analysis
8.4	Discuss the cellular factors that affect the radio sensitivity of each cell.	Cognitive	Comprehension
8.5	Identify physical characteristics of radiation that impact cell response.	Cognitive	Knowledge

	Learning Outcomes		
8.6	Differentiate between radio protectors and radio sensitizers.	Cognitive	Analysis
9.0	Effects of Radiation		
9.1	Explain the terms early and late effects of radiation.	Cognitive	Comprehension
9.2	Describe acute exposure in terms of somatic and genetic effects.	Cognitive	Comprehension
9.3	Differentiate whole body responses and local responses to acute exposure.	Cognitive	Analysis
9.4	Describe chronic exposure in terms of somatic and genetic effects.	Cognitive	Comprehension
9.5	Differentiate whole body responses and local responses to chronic exposure	Cognitive	Analysis
9.6	Distinguish between stochastic and deterministic effects of ionizing radiation.	Cognitive	Analysis

GENERAL EDUCATION CORE COMPETENCIES

Southeastern Technical College has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.
2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are expected to complete all reading, tests, and daily assignments (Worksheets/handouts) by the specified date. Worksheet assignments/handouts are to be completed before the student takes the test on the material assigned. If the student fails to complete any assigned material, a zero will be given for that test and for that assignment.

A written article summary will be required for this course to assess the students written communication abilities. The article summary should be a minimum of five full pages. APA format of writing will be utilized which will include a title page, introduction, summary, and conclusion. The summary should cover all main concepts and points of the article. This will be accomplished by utilizing the article heading and subheadings to guide your summary. The summary should be written in the students own words, except for quotations. The underlying meaning of the article should be expressed and not just the superficial details.

EXAMS: Examinations will be given on a weekly basis to demonstrate the students understanding and proficiency in the course competency areas. No study guides will be provided to the students for exams and no exam grades will be dropped. Additionally, quizzes are subject to be given on any given day over any assigned material (i.e. reading, worksheets/handouts, etc.). Any quizzes missed due to student absence will not be made up.

Any questions regarding a test will need to be submitted by email to the instructor and/or an appointment can be arranged to discuss any questions during the instructor's office hours. No class time will be spent debating test questions.

ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students

from receiving the full benefit of a course and interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of 0. Students who stop attending class, but do not formally withdraw, may receive a grade of "F" (Failing 0-59) and face financial aid repercussions in upcoming semesters.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

Attendance is counted from the first scheduled class meeting of each semester. To receive credit for a course a student must attend at least 90% of the scheduled instructional time. All work missed due to tardiness or absences must be made up at the convenience of the instructor. Any student attending less than the required scheduled instructional time (90%) may be dropped from the course as stated below in the Withdrawal Procedure.

Tardy means arriving after the scheduled time for instruction to begin. Early departure means leaving before the end of the scheduled time. Three (3) tardies or early departures equal one (1) absence for the course.

For this class, which meets 1 day a week for 9 weeks, the maximum number of days a student may miss is 1 day during the semester.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact the appropriate campus coordinator to request services.

Swainsboro Campus: Macy Gay mgay@southeasterntech.edu, 478-289-2274, Building 1, Room 1208

Vidalia Campus: [Helen Thomas hthomas@southeasterntech.edu](mailto:hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 108

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please make arrangements with the appropriate campus coordinator.

Swainsboro Campus: Macy Gay mgay@southeasterntech.edu, 478-289-2274, Building 1, Room 1208

Vidalia Campus: [Helen Thomas hthomas@southeasterntech.edu](mailto:hthomas@southeasterntech.edu), 912-538-3126, Building A, Room 108

It is strongly encouraged that requests for consideration be made **PRIOR** to delivery and early enough in the pregnancy to ensure that all the required documentation is secured before the absence occurs. Requests made after delivery **MAY NOT** be accommodated. The coordinator will contact your instructor to discuss accommodations when all required documentation has been received. The instructor will then discuss a plan with you to make up missed assignments.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% point of the term in which student is enrolled (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" (Withdrawn) is assigned for the course(s) when the student completes the withdrawal form.

Students who are dropped from courses due to attendance after drop/add until the 65% point of the semester will receive a "W" for the course.

Important – Student-initiated withdrawals are not allowed after the 65% point. Only instructors can drop students after the 65% point for violating the attendance procedure of the course. Students who are dropped from courses due to attendance after the 65% point will receive either a "WP" (Withdrawn Passing) or "WF" (Withdrawn Failing) for the semester.

Informing your instructor that you will not return to his/her course, does not satisfy the approved withdrawal procedure outlined above.

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. A grade of "W" will count in attempted hour calculations for the purpose of Financial Aid.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, LABORATORY, ETC.)

A grade of zero will be assigned for any missed assignment regardless of the reason.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states that all forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the Southeastern Technical College Catalog and Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

2. Second Offense

Student is given a grade of "WF" (Withdrawn Failing) for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

3. Third Offense

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of third offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia (TCSG) and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member, or citizenship status (except in those special circumstances permitted or mandated by law). This nondiscrimination policy encompasses the operation of all technical college-administered programs, federally financed programs, educational programs and activities involving admissions, scholarships and loans, student life, and athletics. It also applies to the recruitment and employment of personnel and contracting for goods and services.

All work and campus environments shall be free from unlawful forms of discrimination, harassment and retaliation as outlined under Title IX of the Educational Amendments of 1972, Title VI and Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended, Executive Order 11246, as amended, the Vietnam Era Veterans Readjustment Act of 1974, as amended, Section 504 of the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990, as amended, the Equal Pay Act, Lilly Ledbetter Fair Pay Act of 2009, the Georgia Fair Employment Act of 1978, as amended, the Immigration Reform and Control Act of 1986, the Genetic Information Nondiscrimination Act of 2008, the Workforce Investment Act of 1998 and other related mandates under TCSG Policy, federal or state statutes.

The Technical College System and Technical Colleges shall promote the realization of equal opportunity through a positive continuing program of specific practices designed to ensure the full realization of equal opportunity.

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 108 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie Jonas ljonas@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on Southeastern Technical College's website.

ACCESS TO TECHNOLOGY

Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the [Southeastern Technical College \(STC\) Website \(www.southeasterntech.edu\)](http://www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.

GRADING POLICY

Assessment/Assignment	Percentage
Chapter Exams	50%
Chapter Worksheets/Handouts	10%
Article Summary	20%
Final Exam	20%

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

RADT 1200 Principles of Radiation Biology and Protection Summer Semester 2019 Lesson Plan

Date/Week	Chapter/Lesson	Classroom Content & Tests	Assignments & Due Dates	Competency Area
Week 1 May 14	Chapter 1 Chapter 2	Syllabus Review/Policies & Procedures Review Introduction to Radiation Protection Radiation	Read Chapters 1 & 2 Complete Handout	2,3 c
Week 2 May 21	Chapter 3 Chapter 4	Chapter Exam - Introduction to Radiation Protection & Radiation Interaction of X-Radiation with Matter Radiation Quantities and Units	Chapter 1 & 2 Handout due Read Chapters 3 & 4 Complete Handout	1,4,5 b, c
Week 3 May 28	Chapter 5 Chapter 6	Chapter Exam - Interaction of X-Radiation with Matter Radiation Quantities and Units Radiation Monitoring Overview of Cell Biology	Chapter 3 & 4 Handout due Read Chapters 5 & 6 Complete Handout	7 c
Week 4 June 4	Chapter 7 Chapter 8	Chapter Exam - Radiation Monitoring & Overview of Cell Biology Molecular and Cellular Radiation Biology Early Tissue Reactions and Their Effects on Organ Systems	Chapter 5 & 6 Handout due Read Chapters 7 & 8 Complete Handout	6,8 c
Week 5 June 11	Chapter 9	Chapter Exam - Molecular and Cellular Radiation Biology Early Tissue Reactions and Their Effects on Organ Systems Stochastic Effects and Late Tissue Reactions of Radiation in Organ Systems	Chapter 7 & 8 Handout due Read Chapter 9 Complete Handout	9 c
Week 6 June 18	Chapter 10 Chapter 11	Chapter Exam - Stochastic Effects and Late Tissue Reactions of Radiation in Organ Systems Dose Limits for Exposure to Ionizing Radiation Equipment Design for Radiation Protection	Chapter 9 Handout due Read Chapters 10 & 11 Complete Handout	1,2 c

Date/Week	Chapter/Lesson	Classroom Content & Tests	Assignments & Due Dates	Competency Area
Week 7 June 25	Chapter 12	Chapter Exam - Dose Limits for Exposure to Ionizing Radiation Equipment Design for Radiation Protection Management of Patient Radiation Dose During Diagnostic X-Ray Procedures	Chapter 10 & 11 Handout due Read Chapter 12 Complete Handout	2 c
Week 8 July 9	Chapter 14	Chapter Exam - Management of Patient Radiation Dose During Diagnostic X-Ray Procedures Management of Imaging Personnel Radiation Dose During Diagnostic X-Ray Procedures	Chapter 12 Handout due Read Chapter 14 Complete Handout	3 c
Week 9 July 16		Chapter Exam - Management of Imaging Personnel Radiation Dose During Diagnostic X-Ray Procedures	Chapter 14 Handout due Study All Chapters Covered for Final Exam	3 a ,c
Final Week July 23		Article Summary Due Final Exam @ 8:30 AM		1-9 a,b,c

COMPETENCY AREAS: (WILL VARY FOR EACH COURSE/TAKEN FROM STATE STANDARDS)

1. Radiation detection and measurement
2. Patient Protection
3. Personnel Protection
4. Absorbed dose equivalencies
5. Agencies and Regulations
6. Introduction to radiation biology
7. Cell Anatomy
8. Radiation/Cell Interaction
9. Effects of Radiation

GENERAL CORE EDUCATIONAL COMPETENCIES:

- a) The ability to utilize standard written English.
- b) The ability to solve practical mathematical problems.
- c) The ability to read, analyze, and interpret information.

Article Summary Writing Requirements

1. Utilize APA format of writing
 - Title page
 - Double spaced
 - 12 font, Times New Roman
 - Utilize page numbers on the top right of each page except the title page
2. The summary should be a minimum of 4 full pages
3. The summary should have an introduction, summary, and conclusion
4. The summary should cover all main concepts and points. This should be accomplished by utilizing the article heading and subheadings to guide your summary. Write your summary in your own words, except for quotations. When using quotations use the correct punctuation.
5. Express the underlying meaning of the article, not just the superficial details.

Article Summary Format

TITLE PAGE

- Running Head: RADIATION SAFETY COMPLIANCE (this should be on the first page; all subsequent pages should only have RADIATION SAFETY COMPLIANCE at the top left).
- Name of Article (Mid page)
- Student Name
- Class (RADT 1200 Principles of Radiation Biology and Protection)
- Date

INTRODUCTION

Start with a summary or overview of the article, which includes the author's name, and the title of the article. Finish with a thesis statement that states the main idea of the article.

BODY PARAGRAPHS

The number of paragraphs in your summary depends on the length of the original article. Your summary should be about one-third the length of the original article at minimum. This should be about four pages. Start each body paragraph with a topic sentence. Each paragraph focuses on a separate main idea and just the most important details from the article. Put the ideas from the essay into your own words. Avoid copying phrases and sentences from the article. Use transitional words and phrases to connect ideas.

CONCLUDING PARAGRAPH

Summarize the main idea and the underlying meaning(s) of the article.

Article Summary Grading Rubric

*Assignment is worth 100 total points

CATEGORY	16.66 Above Standards	12.50 Meets Standards	8.33 Approaching Standards	4.165 Below Standards
Introduction	The introduction has a strong hook or attention. This could be a strong concept sentence, a relevant quotation, statistic, or question addressed to the reader.	The introduction has a hook or attention grabber. Includes a good concept sentence and/or interesting quote.	The author has a weak introductory paragraph, the connection to the topic is not clear. Paragraph includes a weak concept sentence or quote.	The introductory paragraph is not interesting AND is not relevant to the topic. No concept sentence or quote.
Quotes and Concept Words	All of the examples are specific, relevant and full explanations are given.	Most of the evidence and examples are specific, relevant and explanations are given.	Some of the pieces of evidence and examples are relevant and include an explanation.	Evidence and examples are NOT relevant AND/OR most are not explained.
Body of Summary	All supportive facts and statistics are reported accurately. Article is fully explained and summarized in own words.	Almost all supportive facts and statistics are reported accurately. Article is mostly explained and summarized in own words.	Some supportive facts and statistics are reported accurately. Weak explanation and summary that is partially plagiarized.	Most supportive facts and statistics were inaccurately reported. Article is poorly explained and summary is mostly plagiarized.
Grammar & Spelling	Author makes no errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes 1-3 errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes 4-6 errors in grammar, sentence structure, or spelling that distract the reader from the content.	Author makes more than 6 errors in grammar, sentence structure, or spelling that distract the reader from the content.
Conclusion	The conclusion is strong and leaves the reader solidly understanding the writer's response and personal reaction to the article.	The conclusion is good. Includes the author's response and personal reaction to the article.	Conclusion is weak or incomplete. Limited response and personal reaction to the article.	There is no conclusion - the paper just ends.
Proper Format and Organization	Article summary is typed, has a heading, title, and is submitted on time. Summary is organized into 4 or more pages	Article summary is typed, has a heading, title, and is submitted on time. Summary is organized into 4 pages.	Article summary is typed but submitted late. Incomplete heading and title. Summary has 3 or less pages.	Article summary is not typed. No heading. No title.