A. **Academic Division:** Health Sciences

B. **Discipline:** Health Services Technology

C. **Course Number and Title:** SURG1050, Surgical Tech Anatomy & Physiology

D. **Course Coordinator:** Melinda Roepke, MSN, RN  
   **Assistant Dean:** Melinda Roepke, MSN, RN

**Instructor Information:**
- **Name:** Click here to enter text.
- **Office Location:** Click here to enter text.
- **Office Hours:** Click here to enter text.
- **Phone Number:** Click here to enter text.
- **E-Mail Address** Click here to enter text.

E. **Credit Hours:** 10
   - Lecture Hours: 9
   - Lab Hours: 2

F. **Prerequisites:** SURG1010, SURG1030  
   **Co-requisite:** SURG1070

G. **Syllabus Effective Date:** Fall, 2017

H. **Textbook(s) Title:**

   **Surgical Technology for the ST (Bundle)**
   - **Author:** AST
   - **Copyright Year:** 2014
   - **Edition:** 4th Bundle
   - **ISBN# 978111037566

   **Essentials of Anatomy and Physiology**
   - **Author:** Scanlon and Sanders
   - **Copyright Year:** 2007
   - **Edition:** 5th
   - **ISBN # 080-361-546-9

   **Alexander’s Care of the Patient in Surgery**
   - **Author:** Meeker and Rothrock
   - **Copyright Year:** 2010
   - **Edition:** 1st
   - **ISBN# 978323069168
Pharmacology for the ST
- Author: Keegan
- Copyright Year: 2010
- Edition: 3rd
- ISBN# 978-1416-0543-13

ST Practices and Principles
- Author: Fuller
- Copyright Year: 2010
- Edition: 5th
- ISBN# 978-1416-0603-52

Instrumentation for the Operating Room
- Author: Tighe
- Copyright Year: 2007
- Edition: 7th
- ISBN# 032-300-350-B

I. Workbook(s) and/or Lab Manual: None

J. Course Description: This course covers the essentials of pharmacology and math, structure and function of the integumentary, gastro intestinal, endocrine, reproduction and the urinary systems, the essentials of structure and function of your special senses, the musculoskeletal, circulatory, lymphatic, nervous, and respiratory systems, the organization of the body into cells, tissues, organs, systems, and wound healing are also described. This course is for surgical technologist only and will not meet the needs for any other allied health or nursing program.

K. College-Wide Learning Outcomes:

<table>
<thead>
<tr>
<th>College-Wide Learning Outcome</th>
<th>Assessments - - How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication – Written</td>
<td></td>
</tr>
<tr>
<td>Communication – Speech</td>
<td></td>
</tr>
<tr>
<td>Intercultural Knowledge and Competence</td>
<td></td>
</tr>
<tr>
<td>Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>Information Literacy</td>
<td></td>
</tr>
<tr>
<td>Quantitative Literacy</td>
<td></td>
</tr>
</tbody>
</table>

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Assessments – How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correlate scientific principles to appropriate surgical care.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>2. Relate basic pharmacology background to anatomy and physiology.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>3. Demonstrate proper identification and handling of medications.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>4. Perform basic math conversions and calculations.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>5. Describe and classify basic organization of body as to cells, tissues, organs, and systems.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>6. Describe and classify structure and function of skin layers.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Assessments – How it is met &amp; When it is met</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>7. Describe the healing processes and its complications.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>8. Describe and classify structure and function of digestive structures.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>9. Describe and analyze functions of major endocrine glands and hormones they produce.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>10. Describe the structure and function and regulatory mechanisms of the urinary system.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>11. Describe the structure, function and regulatory mechanisms of the urinary system.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>12. Complete a Prep Sheet and research for a surgical case.</td>
<td>Midterm exam – middle of the term</td>
</tr>
<tr>
<td>13. Correlate scientific principles to appropriate surgical care.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>14. Describe and characterize the structure and function of the special senses, including the eye and ear.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>15. Identify bones, cartilage and joints of appropriate anatomical regions</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>16. List and describe major functions and types of muscles.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>17. Describe and characterize the structure and function of the circulatory system including blood components and heart vessels.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>18. Describe and characterize the lymphatic system.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>19. Compare and contrast the structure and function of the central nervous system, peripheral nervous system and the autonomic nervous system.</td>
<td>Unit exam and quizzes – throughout the term</td>
</tr>
<tr>
<td>20. Describe and characterize the structure, function and regulatory mechanisms of the respiratory system.</td>
<td>Unit exam and quizzes – throughout the term; final exam – end of the term</td>
</tr>
</tbody>
</table>

M. Topical Timeline (Subject to Change):

1. Unit I – Pharmacology and Math
   a. Pharmacology
      1) history
      2) drug sources
      3) nomenclature
      4) classification
      5) administration
      6) pharmacokinetics
   b. Math
      1) metric
      2) fractions
      3) decimals
      4) percentages
      5) Fahrenheit/Celsius temperature
      6) measurement systems
         a) metric
         b) apothecary
         c) household
2. Unit II – Organization of Body
   a. Body planes and regions
      1) planes
      2) regions
3) terms of reference
4) cavities

a. Cells
   1) structure and function
   2) division
   3) metabolism

b. Tissues and membranes
   1) types and functions
   2) structure and location
   3) growth abnormalities

c. Organs
   1) types
   2) activities

d. Systems – homeostasis

3. Unit III – Skin and Wound Healing
   a. Integumentary system
      1) skin layers and function
      2) accessory organs
   b. Accessory organs
      3) types of wounds
      4) mechanics of wound healing
      5) factor influencing
      6) classify surgical
      7) complications
      8) terminology

4. Unit IV – GI/Endocrine
   a. Gastrointestinal system
      1) anatomic pathway
      2) abdominal cavity
      3) structure of GI system
         a) oral cavity
         b) pharynx
         c) esophagus
         d) stomach
         e) small and large intestine
         f) anus
         g) salivary glands
         h) liver
         i) gallbladder
         j) pancreas
      4) basic nutrition
   b. Endocrine system

5. Unit V – Reproductive
   a. Reproductive system
      1) female reproductive system
         a) external
         b) internal
         c) mammary glands
      2) menstruation cycle
         a) menstrual phase
         b) follicular phase
         c) luteal phase
      3) pregnancy
         a) fertilization
         b) placenta
         c) gestation
d) parity
  e) abortion, miscarriage
  f) prematurity
b. Male reproductive system
   1) structure and function
      a) internal
      b) external
6. Unit VI – Urology
   a. Structure and function of the urinary system
      1) kidneys
      2) renal vessels
      3) ureters
      4) bladder
      5) urethra
   b. Nephron Unit
      1) structure
      2) function
c. Normal Components of Urine
d. Abnormal Components of Urine
7. Prep Sheet
   a. Prep sheet
      1) diagnoses
      2) medications
      3) draping
      4) sterile supplies
      5) dressing and drains
      6) trays
      7) instruments
         a) general
         b) specialty
         c) endoscopy
   b. Research
      1) surgical procedure
      2) steps to the surgical procedure
8. Unit VII – Special Senses
   a. Special senses
      1) visual
      2) auditory
      3) olfactory
      4) gustatory (taste)
b. Eye
      1) socket
      2) muscles
      3) lacrimal apparatus
      4) eyeball
      5) photoreception
c. Ear
      1) external
      2) middle
      3) internal
      4) physiology of hearing
         a) sound wave reception
         b) bone conduction
         c) fluid conduction
         d) nerve conduction
      5) balance and equilibrium
9. Unit VIII – Musculoskeletal System
   a. Skeletal system
      1) bone and cartilage
         a) types/structure
         b) function
         c) identification
         d) bone formation
      2) joints
         a) types
         b) function
         c) identification
   b. Muscular systems
      1) structure
      2) function
      3) types
      4) contraction
      5) identification

10. Unit IX and X – Circulatory System
    a. Blood components
       1) structure of formed elements
          a) red blood cells (erythrocytes)
          b) white blood cells (leukocytes)
          c) platelets (thrombocytes)
          d) plasma and components
       2) function of formed elements
          a) transportation of oxygen, nutrients and wastes
          b) protection (immune system)
          c) clotting mechanism
          d) acid-base (pH) buffers
          e) blood studies and ABG’s
       3) blood types
          a) antigen
          b) antibodies in serum
          c) type and crossmatching
          d) complications of blood transfusion
       4) RH factor
          a) RH positive
          b) RH negative
          c) implications in pregnancy
    b. Lymph system
       1) type and location of lymph tissue
          a) tonsils
          b) thymus
          c) spleen
          d) Peyer’s patches
          e) regional lymph nodes
       2) function of the lymph glands
          a) filter lymph fluid
          b) production of T cells and B cells
          c) antibody formation
    c. Heart
       1) location, position and structure of the heart
          a) mediastinum
          b) apex
c) chambers and valves  
d) pulmonary veins, arteries, aorta and vena cava  
e) coronary arteries and veins  

2) flow of the blood  
a) atrial contraction  
b) ventricular contraction  
c) relaxation  

3) conduction pathway of the heart  
a) sinoatrial node (pacemaker of the heart)  
b) atrioventricular node  
c) atrial contraction  
d) bundle of his and bundle branches  
e) purkinje fibers  
f) ventricular contraction  

d. Vascular  
1) type and structure of vessels  
a) arteries and veins  
b) layers  
i. tunica intima  
ii. tunica media  
iii. tunica externa or adventitia  
iv. valves  
2) major systemic arteries  
3) major systemic veins  
4) pulse points  
5) factors that affect blood pressure  
a) cardiac output  
b) peripheral vascular resistance (vasoconstriction or dilation)  
c) blood volume  

11. Unit XI – Nervous System  
a. Nervous system  
1) neuron and its function  
2) dendrites  
3) cell body  
4) axon  
5) myelin  
6) Schwann cells  
7) neurilemma  
8) impulse conduction  
a) synapse  
b) neurotransmitters  

b. Structures and functions of the major divisions of the nervous system  
1) central nervous system (CNS)  
a) brain  
b) spinal cord  
2) peripheral nervous system (PNS)  
a) cranial nerves  
b) spinal nerves  
3) autonomic nervous system (ANS)  

12. Unit XII – Respiratory System  
a. Respiratory pathway and functions  
1) nasal cavity  
2) nasopharynx  
3) oropharynx  
4) laryngopharynx  
5) larynx
6) trachea
7) bronchi
8) bronchioles
9) alveoli
10) pulmonary capillaries

b. Lungs
1) lobes
2) pleural space

c. Mechanism of inspiration and expiration
1) chemical control  
   a) carbon dioxide
   b) oxygen
2) diaphragm
3) intercostal muscles
4) changes in intrapleural pressures
5) changes in intrapulmonic (lung) pressures

d. Measuring respiratory volume
1) tidal volume
2) vital capacity
3) inspiratory reserve
4) expiratory reserve
5) residual volume

e. Breathing abnormality terms
1) hyperventilation  
   a) tachypnea
   b) hyperpnea
2) apnea
3) dyspnea
4) hypoxia
5) hypercapnea
6) cyanosis
7) Cheyne-Stokes respiration

N. Course Assignments:

1. Models Review
2. Diagrams of Human Body
3. Skits for Role Play
4. Group Discussion
5. Homework Assignments

O. Recommended Grading Scale:

<table>
<thead>
<tr>
<th>NUMERIC</th>
<th>GRADE</th>
<th>POINTS</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>93–100</td>
<td>A</td>
<td>4.00</td>
<td>Superior</td>
</tr>
<tr>
<td>90–92</td>
<td>A-</td>
<td>3.67</td>
<td>Superior</td>
</tr>
<tr>
<td>87–89</td>
<td>B+</td>
<td>3.33</td>
<td>Above Average</td>
</tr>
<tr>
<td>83–86</td>
<td>B</td>
<td>3.00</td>
<td>Above Average</td>
</tr>
<tr>
<td>80–82</td>
<td>B-</td>
<td>2.67</td>
<td>Above Average</td>
</tr>
<tr>
<td>77–79</td>
<td>C+</td>
<td>2.33</td>
<td>Average</td>
</tr>
<tr>
<td>73–76</td>
<td>C</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>70–72</td>
<td>C-</td>
<td>1.67</td>
<td>Below Average</td>
</tr>
<tr>
<td>67–69</td>
<td>D+</td>
<td>1.33</td>
<td>Below Average</td>
</tr>
<tr>
<td>63–66</td>
<td>D</td>
<td>1.00</td>
<td>Below Average</td>
</tr>
</tbody>
</table>
Students must maintain a grade of 78% or above.

P. **Grading and Testing Guidelines:**

Click here to enter text.

Q. **Examination Policy:**

Click here to enter text.

R. **Class Attendance and Homework Make-Up Policy:**

Click here to enter text.

S. **Classroom Expectations:**

Click here to enter text.

T. **College Procedures/Policies:**

**Attendance Requirements:** All students are required to attend all scheduled classes and examinations. Each faculty member has the right to establish regulations regarding attendance that he/she considers necessary for successful study.

Students who do not attend classes may be administratively withdrawn from those classes. However, failure to attend classes does not constitute withdrawal, and students are expected to process a formal withdrawal through the Student Records Office in Kee Hall.

**Student engagement requirements:**

Student engagement is based on the “active pursuit” of learning which can be measured by class attendance, class participation (in class or online), taking required quizzes/examinations, and submission of work assignments or papers. Student engagement consists of a student attending at least 60% of the class sessions (there should be attendance throughout the term) and/or completing 75% of the assignments listed on the syllabus at the midpoint in the term. Exceptions can be made when there is on-going communication between the student and faculty member. The communication must be documented and the faculty member and student must be in agreement regarding the exception. Students not meeting the expectation will be administratively withdrawn from class. If a student believes he/she was administratively withdrawn in error, he/she may file an appeal. Being administratively withdrawn may have program and financial aid implications.

**Academic Misconduct** is any activity that tends to compromise the academic integrity of the college, or subvert the educational process. Examples of academic misconduct include, but are not limited to:

1. **Violation of course or program rules** as contained in the course syllabus or other information provided to the student; violation of program requirements as established by departments and made available to students.

2. **Plagiarism** including, but not limited to, submitting, without appropriate acknowledgment, any written, visual or oral material that has been copied in whole or in part from the work of others (whether such source is published or not) even if the material is completely paraphrased in one’s own words. This includes another individual’s academic composition, compilation, or other product, or a commercially prepared paper. Plagiarism also includes submitting work in which
portions were substantially produced by someone acting as a tutor or editor.

Such practices constitute plagiarism regardless of motive. Those who deny deceitful intent, claim not to have known that the act constituted plagiarism, or maintain that what they did was inadvertent are nevertheless subject to penalties when plagiarism has been confirmed.

3. **Cheating** and dishonest practices in connection with examinations, papers and projects, including but not limited to using unauthorized notes, study aids or information on an examination; obtaining help from another student during an examination; taking an exam or doing work for another student; providing one’s own work for another student to copy and submit as his/her own; or allowing another student to do one’s work and then submitting the work as one’s own. Also included would be altering a graded work after it has been returned, then submitting the work for re-grading; or submitting identical or similar papers for credit in more than one course without prior permission from the course instructors.

4. **Fabrication** including but not limited to falsifying or inventing any information, data or citation; presenting data that were not gathered in accordance with defined appropriate guidelines, and failing to include an accurate account of the method by which data were collected.

5. **Obtaining an Unfair Advantage** including, but not limited to stealing, reproducing, circulating, or otherwise gaining access to examination materials prior to the time authorized by the instructor; unauthorized collaborating on an academic assignment; taking, hiding or altering resource material; or undertaking any activity with the purpose of creating or obtaining an unfair advantage over another student’s academic work.

6. **Aiding and Abetting Academic Dishonesty** including, but not limited to providing material, information or other assistance to another person with the knowledge that such aid could be used in any of the violations stated above, or providing false information in connection with any inquiry regarding academic integrity.

7. **Alteration of Grades or Marks** including but not limited to, action by the student in an effort to change the earned credit or grade.

In addition, cases of academic dishonesty may involve photocopied materials. Materials used may fall under the Copyright Act. Violations of said Act may subject the user and/or the College to sanctions.

**Statement on Disabilities:** Any student who requires reasonable accommodations related to a disability should inform the course instructor and the Coordinator of Specialized Services (Room 138 in Kee Hall; phone 419-755-4727).

Students who encounter difficulty in any of their courses are encouraged to visit the Tutoring Resource Center (Room 119 in Fallerius Technical Education Center) for tutoring assistance, and the Student Success Center (Room 136 in Kee Hall) for academic assistance, advising services, referrals for personal counseling and Learning Disability (LD) Testing.

**Statement on Withdrawals:** As a student, you are expected to attend class. If you are unable or choose not to attend class, or if for whatever reason you are unable to keep up with the requirements of a course, you need to officially drop the class at the Student Records Office. Refund dates and withdrawal dates will vary slightly from term to term. Contact the Student Records Office for applicable dates. Additionally these dates are posted on the academic calendar available on the college’s website, [www.ncstatecollege.edu](http://www.ncstatecollege.edu), under the Academics heading on the home page and are available at the Student Records Office in Kee Hall. Students should go to the Student Records Office (Room 142 in Kee Hall) to process their withdrawal from any class.

If you choose to walk away from your class without officially withdrawing from it, the faculty member teaching the class must grade your classroom performance on the material available to him or her. This
normally results in an "F" grade. An "F" grade can lower your grade point average considerably depending on the total credits accumulated.