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| **Catalog Year 2023-2024**  B.S. Medical Laboratory Science | ***(For internal use )***  *No change*  *UCC proposal* |

A Major Academic Plan (MAP) is one way to complete a degree in a set number of semesters. The *example* below is only one strategy. Actual plans for individual students will vary based on advisor recommendations and academic needs. Official Program Requirements including Major, General Education, Electives, and university requirements (see pg. 2) are based on Catalog Year.

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| **Course Subject and Title** | **Cr.** | **Min.**  **Grade** | **\*GE,**  **UU or UM** | **\*\*Sem. Offered** | **Prerequisite** | **Co-Requisite** | | | |
| Semester One | | | | | | | | | |
| GE Objective 1: ENGL 1101 Writing and Rhetoric I | 3 | C- | GE | F, S, Su | Appropriate placement score |  | | | |
| GE Objective 5: BIOL 1101 & Lab Biology I | 4 |  | GE | F, S, Su | Able to place into Math 1108 |  | | | |
| GE Objective 3: MATH 1143 | 3 |  | GE | F, S, Su | MATH 1108 |  | | | |
| GE Objective 2: COMM 1101 Principles of Speech | 3 |  | GE | F, S, Su |  |  | | | |
| Total | 13 |  |  |  |  |  | | | |
| Semester Two | | | | | | | | | |
| GE Objective 1: ENGL 1102 Writing and Rhetoric II | 3 | C- | GE | F, S, Su | ENGL 1101 or equivalent |  | | | |
| GE Objective 5: CHEM 1111 & 1111L Gen. Chemistry and Lab | 5 |  | GE | F, S | MATH 1143 or 1147 |  | | | |
| MATH 1153 Statistical Reasoning | 3 |  |  | F, S, Su | MATH 1108 |  | | | |
| BIOL 1102/L Biology II and Lab | 4 |  |  | F, S | BIOL 1101 |  | | | |
| Total | 15 |  |  |  |  |  | | | |
| Semester Three | | | | | | | | | |
| CHEM 1112/L General Chemistry II and Lab | 4 |  |  | F, S | CHEM 1111/L, MATH 1143 or 1147 |  | | | |
| Either BIOL 3301/L Advanced Human Anatomy & Physiology and Lab OR BIOL 2227/L Human Anatomy & Physiology and Lab | 4 | C- | UM | F, S | BIOL 1101 or BIOL 2227/L |  | | | |
| C- |  | F, S | Must place into MATH 1108 |  | | | |
| BIOL 2206 & BIOL 2207 Cell Biology and Lab | 4 | C- |  | F, S | BIOL 1101, 1102, CHEM 1111, 1112 | CHEM 1112 | | | |
| GE Objective 6: | 3 |  | GE |  |  |  | | | |
| Total | 15 |  |  |  |  |  | | | |
| Semester Four | | | | | | | | | |
| BIOL 2233/2233L Principles of Microbiology and Lab | 4 |  |  | F, S | BIOL 1101 BIOL 2227/CHEM 1101 or CHEM 1111 | | | | BIOL 2233L |
| BIOL 3302/L Advanced Human Anatomy & Physiology and Lab | 4 | C- | UM | F, S | BIOL 1101 or BIOL 2227/L |  | | | |
| GE Objective 7 or 8: | 3 |  | GE |  |  |  | | | |
| GE Objective 6: | 3 |  | GE |  |  |  | | | |
| Total | 14 |  |  |  |  |  | | | |
| Semester Five | | | | | | | | | |
| Either BIOL 4463 & 4463L Human Pathophysiology  OR BIOL 2229 Introduction to Pathobiology | 3 | C- | UM | F | BIOL 3301, 3302 or permission of instructor | |  | | |
| 4 | C- |  | F, S | BIOL 2228 |  | | | |
| BIOL 4451 Immunology | 3 |  | UM | F | BIOL 2221/L or BIOL 2235/L |  | | | |
| Chemistry Electives | 3 | C- |  |  |  |  | | | |
| GE Objective 4 | 3 |  | GE |  |  |  | | | |
| Total | 13-14 |  |  |  |  |  | | | |
| Semester Six **( Apply to MLS program by February)** | | | | | | | | | |
| BIOL 3358 Genetics | 3 |  | UM | F, S | BIOL 2206 or BIOL 2235 |  | | | |
| Chemistry Electives | 4 |  |  |  |  |  | | | |
| GE Objective 9: | 3 |  | GE |  |  |  | | | |
| GE Objective 4: | 3 |  | GE |  |  |  | | | |
| **(May choose to take 3 elective credits to be full time)** Total | 13 |  |  |  |  |  | | | |
| Semester Seven | | | | | | | | | |
| MLS 4410 Phlebotomy Practicum | 1 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4412 Urinalysis and Body Fluids | 1 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4414 Hematology & Hemostasis | 3 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4416 Medical Microbiology I | 3 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4418 Medical Chemistry & Instrumentation | 3 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4420 Medical Immunology | 2 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4422 Basic Concepts Transfusion Medicine | 2 | C- | UM | F | Acceptance to MLS program |  | | | |
| MLS 4424 Medical Laboratory Fundamentals | 1 | C- | UM | F | Acceptance to MLS program |  | | | |
| Total | 16 |  |  |  |  |  | | | |
| Semester Eight | | | | | | | | | |
| MLS 4431 Medical Microbiology II | 3 | C- | UM | S | Acceptance to MLS program, MLS 4416 | | |  | |
| MLS 4433 MLS Management & Education | 2 | C- | UM | S | Acceptance to MLS program |  | | | |
| MLS 4435 Molecular Diagnosis | 3 | C- | UM | S | Acceptance to MLS program |  | | | |
| MLS 4437 Critical Analysis of Lab Information | 3 | C- | UM | S | Acceptance to MLS program |  | | | |
| MLS 4439 Advanced Concepts in Transfusion Medicine | 2 | C- | UM | S | Acceptance to MLS program, MLS 4422 | | |  | |
| MLS 4441 MLS Research1 **(may choose to take 1 to 3 credits)** | 1-3 | C- | UM | S | Acceptance to MLS program |  | | | |
| MLS 4455 MLS Student Laboratory Practices | 2 | C- | UM | S | Acceptance to MLS program |  | | | |
| Total | 16-18 |  |  |  |  |  | | | |
| Summer Practicum | | | | | | | | | |
| MLS 4490 General Site Practicum2 | 1 or 6 |  | UM | F, S, Su | Permission of Program Director |  | | | |
| MLS 4491 Microbiology Practicum2 | 2 |  | UM | F, S, Su | Permission of Program Director |  | | | |
| MLS 4492 Hematology an Urinalysis Practicum2 | 2 |  | UM | F, S, Su | Permission of Program Director |  | | | |
| MLS 4493 Transfusion Blood Bank Practicum2 | 1 |  | UM | F, S, Su | Permission of Program Director |  | | | |
| MLS 4494 Chemistry and Automation Practicum2 | 1 |  | UM | F, S, Su | Permission of Program Director |  | | | |
| Total | 7-13 |  |  |  |  |  | | | |
| \*GE=General Education Objective, UU=Upper Division University, UM= Upper Division Major \*\*See Course Schedule section of Course Policies page in the e-catalog (or input F, S, Su, etc.) | | | | | | | | | |

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| B.S., Medical Laboratory Science Page 2 | | | | | |
| **2023-2024 Major Requirements** | **CR** | **GENERAL EDUCATION OBJECTIVES**  **Satisfy Objectives 1,2,3,4,5,6 (7 or 8) and 9** | | | **36 cr. min** |
| **MAJOR REQUIREMENTS** | **82-90** | 1. Written English (6 cr. min) ENGL 1101 | | | 3 |
|  |  | ENGL 1102 | | | 3 |
| **Program Required Pre-Requisite Courses:** | **21-22** | 2. Spoken English (3 cr. min) COMM 1101 | | | 3 |
| BIOL 2206/BIOL 2207 Cell Biology and Lab | 4 | 3. Mathematics (3 cr. min) MATH 1143\* | | | 3 |
| Either BIOL 2233 Principles of Microbiology  AND BIOL 2233 Principles of Microbiology Lab | 4 | 4. Humanities, Fine Arts, Foreign Lang. **(2 courses; 2 categories; 6 cr. min)** | | | |
| Either BIOL 3301/L Advanced Human Anatomy & Physiology and Lab  OR BIOL 2227/L Human Anatomy & Physiology and Lab | 4 | 5. Natural Sciences **(2 lectures-different course prefixes, 1 lab; 7 cr. min)** | | | |
| BIOL 3358 Genetics | 3 | BIOL 1101/L | | | 4 |
| BIOL 4451 Immunology | 3 | CHEM 1111/L | | | 5 |
| Either BIOL 4463/L Human Pathophysiology  OR BIOL 2229 Introduction to Pathobiology | 3 - 4 | 6. Behavioral and Social Science **(2 courses-different prefixes; 6 cr. min)** | | | |
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| **Other Required and Pre-Requisite Courses** | **22** | One Course from EITHER Objective 7 OR 8 **(1 course; 3 cr. min)** | | | |
| BIOL 1101/L Biology I and Lab (Counted in GE Obj. 5) | | 7. Critical Thinking | | |  |
| BIOL 1102/L Biology II and Lab | 4 | 8. Information Literacy | | |
| CHEM 1111/L General Chemistry I and Lab (Counted in GE Obj. 5) | | 9. Cultural Diversity **(1 course; 3 cr. min)** | | | |
| CHEM 1112/L General Chemistry II and Lab | 4 |  | | |  |
| BIOL 3302/L Advanced Human Anatomy & Physiology II and Lab | 4 | General Education Elective to reach 36 cr. min. **(if necessary)** | | | |
| Additional Chemistry Courses (Not including CHEM 1100) | 7 |  | | |  |
| Either MATH 1143 College Algebra\*  OR MATH 1147 College Algebra and Trigonometry  OR MATH 1160 Survey of Calculus  OR MATH 1170 Calculus I (counted in GE Obj. 3) | | **Total GE** | | | **39** |
| MATH 1153 Statistical Reasoning | 3 | Undergraduate Catalog and GE Objectives by [Catalog Year](https://coursecat.isu.edu/undergraduate/academicinformation/generaleducation/)  *http://coursecat.isu.edu/undergraduate/programs/* | | | |
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| **Professional Degree Requirements** | **32-34** |  | | |  |
| MLS 4410 Phlebotomy Practicum | 1 | **MAP Credit Summary** | | | **CR** |
| MLS 4412 Urinalysis and Body Fluids | 1 | Major | | | 82-90 |
| MLS 4414 Hematology & Hemostasis | 3 | General Education | | | 39 |
| MLS 4416 Medical Microbiology I | 3 | Upper Division Free Electives to reach 36 credits | | | 0 |
| MLS 4418 Medical Chemistry & Instrumentation | 3 | Free Electives to reach 120 credits | | | 0 |
| MLS 4420 Medical Immunology | 2 | TOTAL | | | 121-129 |
| MLS 4422 Basic Concepts Transfusion Medicine | 2 |
| MLS 4424 Medical Laboratory Fundamentals | 1 |  | | |  |
| MLS 4431 Medical Microbiology II | 3 | **Graduation Requirement Minimum Credit Checklist** | | | **Confirmed** |
| MLS 4433 Medical Lab Science Management & Education | 2 | Minimum 36 cr. General Education Objectives (15 cr. AAS) | | |  |
| MLS 4435 Molecular Diagnosis | 3 | Minimum 15 cr. Upper Division in Major (0 cr. Associate) | | |  |
| MLS 4437 Critical Analysis of Lab Information | 3 | Minimum 36 cr. Upper Division Overall (0 cr. Associate) | | |  |
| MLS 4439 Advanced Concepts in Transfusion Medicine | 2 | Minimum of 120 cr. Total (60 cr. Associate) | | |  |
| MLS 4441 MLS Research1 | 1-3 | ***MAP Completion Status (for internal use only)*** | | | |
| MLS 4455 MLS Student Laboratory Practices | 2 |  | | | |
|  |  |  | *Date* | | |
| **Required Practicum Experience** | **7 or 12** |  |  | | |
| *OAA or COT:* |  | | |
| MLS 4490 General Site Practicum2 | 1 or 6 |  |  | | |
| MLS 4491 Microbiology Practicum2 | 2 | **Complete College American Momentum Year**  **Math and English course in first year-Specific GE MATH course identified**  **9 credits in the Major area in first year**  **15 credits each semester (or 30 in academic year)**  **Milestone courses** | | | |
| MLS 4492 Hematology and Urinalysis Practicum2 | 2 |
| MLS 4493 Transfusion Blood Bank Practicum2 | 1 |
| MLS 4494 Chemistry and Automation Practicum2 | 1 |
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| **Advising Notes** | |  | | | |
| \*MATH 1143 College Algebra is highly recommended. | |  | | |  |
| 1 This is a 1-credit course that may be taken for up to 3 credits. Only 1 credit is required for graduation. | |  | | |  |
| 2 A total of 6 credits of Practicum experiences (minimum of 480 hours) is required to be eligible to take Board of Certification (BOC) national examinations. This requirement is fulfilled by an MLS student taking MLS 4491, MLS 4492, MLS 4493 and MLS 4494. One (1) credit of Practicum experience (80 hours) is required for a B.S. in Medical Laboratory Science but the graduate will NOT be eligible for BOC national certification. This requirement may be fulfilled by an MLS student taking MLS 4490. | |  | | |  |
| Form Revised 9.10.2019 | | | | | |