## BME Curriculum Checklist Name/Class: Focus Area:

## Course Plan for Class of '25 (07.06.21) Credits Semester ✓ Credits Semester Core Requirements (34) BME Focus Area and Design (27) At least 21 credits chosen from Focus Area Course Sheets. Career Exploration in BME\* 0 Fr,S-Sr,S At Least 6 credits chosen from Approved Design Course List. 580.111 Biomedical Engineering and Design 2 Fr, F 580.151 Structural Biology of Cells 3 Fr, S \*3 credits from Advanced Design Team (400-level) or Advanced Focus 580.153 Structural Biology of Cells Lab Fr, S 1 Area Research (580.56x) may be counted. Advanced Design Team 580.221 Biochemistry and Molecular Engineering and Adv Focus Area Research requires an additional approval step. 4 So, F 580.241 Statistical Physics 2 So,F or J,F \*3 or fewer credits can be chosen from the non-ULE list for the focus area course list - research, the first half of Design Team, or 580.580. 580.242 Biological Models and Simulations 2 So,S or J,S 580.243 Linear Signals and Systems 2 So,F or J,F \*3 or fewer credits can be chosen from list of 200-level focus area 580.244 Nonlinear Dynamics of Biological Systems 2 So,S or J,S course list (available in certain focus areas). 580,246 Systems and Controls 2 Focus Area Total (21) So,S or J,S 580.248 Systems Biology of the Cell So,S or J,S 2 Jn, F 580.475 Biomedical Data Science 580.477 Biomedical Data Science Lab Lab Jn, F 580.485 Computational Medicine: Cardiology 2 Jn, F 580.487 Computation Medicine: Cardiology Lab Jn, F 580.4XX Core Elective I\*\* 3 Jn, S 580.4XX Core Elective II\*\* 3 Jn, S Design Total (6) Physics & Chemistry (18) 171.101 General Physics for Physical Science Majors I 4 Fr, F 173.111 General Physics I Lab Fr, F 171.102 General Physics for Physical Science Majors II 4 Fr, S Other Electives (9) 173.112 General Physics II Lab 1 Fr, S These can be any courses taken at JHU, but are often pre-requisite courses 030.101 Introductory Chemistry I 3 Fr, F or courses required for medical school (i.e. Orgo I, Orgo II, and Fr, F Orgo Lab). 030.105 Introductory Chemistry Lab I 1 030.102 Introductory Chemistry II 3 Fr, S Fr, S 030.106 Introductory Chemistry Lab II Mathematics (20)\*\* equired for all BME majors. 110.108 Calculus I 4 Fr, F 110.109 Calculus II Fr, S **Humanities/Social Sciences (18)** 110.202 Calculus III 4 So, F Courses need an H or S designation 553.291 Linear Algebra & Differential Equations 4 b4 So, S At least 1 course must be 300-level. Advanced Statistics (Prob/Stat is typical) 4 300-level: So, S \*\*\*\* LinAlg + DiffEq 8 Computing (3) An introductory programming course must be taken (see handbook for approved courses). 500.11x Gateway Computing (JAVA, Matlab, Python)

\* Note: Students will be enrolled via a Blackboard Community page beginning Freshman spring and every semester throughout their remaining semesters in the program.

## Other Notes:

- Fr = Freshman, So = Sophomore, Jn = Junior, Sn = Senior, F = Fall, S = Spring, by = take before that semester.
- Semesters that have already been typed in are the recommended ones for that particular course.

THE FOLLOWING BOXES (Writing Intensive) DOES NOT REQUIRE ANY EXTRA CREDITS, THEY CAN BE SATISFIED USING COURSES THAT ARE IN OTHER BOXES:

<b>Built-In Requirement: Writing Intensive Courses</b> At least 6 credits of courses with the "W" designation must be completed (courses filled into the Electives or Humanities/Social Sciences boxes may be used here).			

TOTAL CREDITS (≥129 needed): ——

<sup>\*\*</sup> Note: Pick 2 courses (580.424, 580.427, 580.452, 580.453, 580.454, 580.494). Courses taken in excess of this requirement can be used in the focus area list if applicable.

<sup>\*\*\*</sup> Note: Completion sequence of required math courses is based on student's placement from AP and/or transfer credit. See sample programs for more information.

<sup>\*\*\*\*</sup> Note: Students planning to minor or double major in AMS should take the separate Linear Algebra (AS.110.201) and Differential Equations (AS.110.302).