Dear Academic Senate Committee,

The Biology Department appreciates the discussion with the committee about the new Genomics and Bioinformatics Track. Our department has discussed the suggestions from the committee and decided to submit the proposal with a few minor modifications.

First, we established a "Recommended Courses" list for students who are interested in exploring several subfields related to genomics and bioinformatics, for example, students who would like to specialize in genome technology, structural biology, or ecology and conservation in the future, either for a graduate degree or a position in the industry. We recommend a few additional courses that can help the student to be more prepared, although these courses are not required to graduate. These courses can now be found on page 3 of the revised proposal.

Genomics and Bioinformatics Track Recommended Courses

*Recommended courses are not required to graduate. However, we strongly recommend that students who are interested in these fields take these courses to be more prepared for a graduate degree or in the workforce.

Future interest	Course list
Genome technology	BIO 113 Biochemistry (4), BIO 132 Molecular Biology (4), CS 128 Information Retrieval and Big Data (4), CS 116 Artificial Intelligence and Machine Learning (4)
Structural biology (i.e., protein or RNA structures)	BIO 113 Biochemistry (4), CHM 115 Advanced Biochemistry (4), BIO 132 Molecular Biology (4), CS 128 Information Retrieval and Big Data (4)
Ecology and conservation	BIO 125 General Ecology (4)

We agree that it is a great idea to provide more guidance for students who are interested in each subfield, and yet prevent the total unit requirement from increasing by making those courses mandatory for every student in this track.

We think that maintaining a total of 64 units for the Genomics and Bioinformatic Track is the most optimal strategy. We do not intend to create an impression that Genomics and Bioinformatics Track is more difficult by setting a higher total unit requirement. A higher unit requirement could possibly discourage students from choosing this track. We plan to supply the students with the recommended courses list to guide them to take sufficient courses for those who would like to pursue an elite graduate degree or a position in the industry (previous point above) rather than making those courses mandatory for everybody. We also did a comparison to investigate whether the Genomics and Bioinformatics Track has a lower requirement for upper-division biology courses. Currently, the upper-div biology courses are BIO-114 Genetics, BIO-117 Genomics and Bioinformatics, and BIO-131 Evolution, and one from the following

BIO 113 Biochemistry (4)
BIO 110 Microbiology (4)
BIO 130 Cell Biology (4)
BIO 132 Molecular Biology (4)

This is the same number of upper-division courses as a B.A. in Biology. Therefore, we believe that the Genomics and Bioinformatics Track does provide equivalent training in biology as a Bachelor's degree, and the quality of biology training is not reduced.

In addition, our department has conducted a student survey to gauge the possible student interests in this track. The survey was sent to all science majors at Westmont. Among the 26 respondents, 9 responded that they are either definitely (7) or highly likely (2) to choose this track if they were to start freshmen at Westmont. 11 responded "Maybe" and they would like to learn more information and other students' experience first before deciding on this track. Most respondents either strongly agree (15) or agree (10) that they would love to see this option available at Westmont, although their personal interests may not be in this track. Among the respondents, 12 major in Biology, 7 in Kinesiology, and 3 in Chemistry, and most respondents are either seniors or juniors. Overall, we concluded that there are high student interests in this new track, although we recognize the possibility that the actual enrollment might be lower than the survey number. (Survey data are available upon request.)

We believe the best option right now is to create a track within the major to begin this new idea. In the future, if the student number is consistently growing and if we feel an ongoing need to expand this track into a separate major (Genomics and Bioinformatics Major), we are open to future modifications. At this moment, we feel it is the most reasonable to start this new idea as a track within the major and assess the success of the new curriculum before trying to establish a completely new major. In terms of the name of the major on students' transcripts, we do not believe that a B.S. in Biology on the transcripts will become an issue. It is common in the biology field that a B.S. degree to be general (for example, B.S. Biology) and does not have a specific concentration. Students typically choose their concentration in the graduate schools, such as a Master's or Ph.D. in ecology, cell or molecular biology, or through work experience. We do not think it will pose an issue for a student to apply for a job or graduate degree with a transcript "B.S. in Biology" as long as they receive adequate training and coursework.

Overall, we feel it is important to move forward with this proposal and start providing students with resources to pursue opportunities in this field.

Sincerely,
Biology Department