



JOY HOFMEISTER

STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
OKLAHOMA STATE DEPARTMENT OF EDUCATION

MEMORANDUM

TO: The Honorable Members of the State Board of Education

FROM: Joy Hofmeister

DATE: March 22, 2018

SUBJECT: Wes Watkins, Northeast, and Canadian Valley (Cowan and Yukon Campus)
Technology Center Academy Requesting Approval of Applications for Focus
Fields of Study

The State Department of Education is requesting approval of the Wes Watkins, Northeast, and Canadian Valley (Cowan and Yukon Campus) Technology Center Academy Requesting Approval of Applications for Focus Fields of Career Study.

“Technology centers may offer programs designed in cooperation with institutions of higher education which have an emphasis on a focused field of career study upon approval of the State Board of Education and the independent district board of education. Students in the tenth grade may be allowed to attend these programs for up to one-half (1/2) of a school day and a credit for the units or sets of competencies required in paragraphs 2 and 3 of subsection B of this section shall be given if the courses are taught by a teacher certified in the secondary subject area.”
70 O.S. § 11-103.6

Based on Title 70 §11-103.6.G.1, the State Board of Education shall “ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.” The submitted applications for Wes Watkins, Northeast, and Canadian Valley (Cowan and Yukon Campus) Technology Centers were reviewed based on three primary considerations to address this mandate:

1. the extent to which the course addresses the **necessary and appropriate content**
 - a. Evidence Reviewed: Alignment Study of Course Materials and Competencies to Oklahoma Academic State Standards

2. the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
 - a. Evidence Reviewed: Course Description, Course Syllabus and Identification of Properly Certified Instructor
3. the extent to which there is **application of learning**
 - a. Evidence Reviewed: Joint Program Agreements

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either Insufficient Evidence or Sufficient Evidence. Where possible and appropriate, recommendations are provided to increase supporting evidence. Otherwise, an account of the provided evidence is summarized.

The attached reports indicate that both applications have **Sufficient Evidence** across all three considerations. It is, therefore, our recommendation that **both Fields of Study should be approved.**

The Oklahoma State Department of Education is thankful for the time and dedication of all applicants and especially to the guidance and support offered by Tina Fugate of the Oklahoma State Department of Career Technology.

RG/tr

attachment

Review of Wes Watkins Technology Center's Academy Application

Date: March 22, 2018

Reviewed By: Robbyn Glinsmann, Director of Elementary Mathematics Education, and Megan Cannon, Director of Science and Engineering Education

Summary of Findings

The reviewed courses listed below were identified in the Application for Focused Field of Career Study in Computer Science and Biomedical Science as required or available to students at the Wes Watkins Technology Center. Only those that are not offered exclusively in Career Technology centers or in conjunction with Wes Watkins Technology Center were reviewed.

The application has provided sufficient evidence to satisfy all considerations and is approved to provide the mathematics and science content required by the identified Focus Field of Study to sophomores, juniors, and seniors of the cooperating partner schools. In particular, the following courses are approved: Algebra 2, Trigonometry, College Algebra, Calculus 1, Physics 1, and College Physics.

Consideration: According to this application there appears to be no expectation that students entering into the Pre-Engineering Academy at Wes Watkins Technology Center will be offered courses such as Physical Science, Biology, or Algebra 1. Further evidence should be provided for those courses if there is an expectation that mathematics and/or science credits will be offered to students enrolled in this Academy that are not listed in the present application.

Course Identified in Field of Study	Oklahoma Academic Standards Assurance	Syllabus	College Board Approval Letter ¹	Result
Algebra 2	Sufficient	Sufficient	-	Sufficient
Geometry	Sufficient	Sufficient	-	Sufficient
Pre-Calculus	-	Sufficient	-	Sufficient
Calculus	-	Sufficient	-	Sufficient
Statistics and Probability	-	Sufficient	-	Sufficient
Physics	Sufficient	Sufficient	-	Sufficient
Anatomy and Physiology	-	Sufficient	-	Sufficient
Environmental	Sufficient	Sufficient		Sufficient

¹ Applicable for College Board Advanced Placement courses only.

Science				
Chemistry	Sufficient	Sufficient	-	Sufficient
AP Chemistry	-	Sufficient	Sufficient	Sufficient
PLTW AP Computer Science Principles	-	-	-	Review Not Required
PLTW AP Computer Science A	-	-	-	Review Not Required
PLTW Computer Science Cybersecurity	-	-	-	Review Not Required
Biomedical Innovations	-	-	-	Review Not Required
PLTW Principles of Biomedical Sciences	-	-	-	Review Not Required
PLTW Human Body Systems	-	-	-	Review Not Required
PLTW Medical Interventions	-	-	-	Review Not Required

Process

Based on Title 70 §11-103.6.G.1, the State Board of Education shall “ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.” The submitted application for Wes Watkins Technology Center was reviewed based on three primary considerations to address this mandate:

- 1) the extent to which the course addresses the **necessary and appropriate content**
 - a) Evidence Reviewed: Oklahoma Academic Standards Assurance
- 2) the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
 - a) Evidence Reviewed: Course Description, Syllabus and Identification of Certified Instructor
- 3) the extent to which there is **application of learning**
 - a) Evidence Reviewed: Joint Program Agreements

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either *Insufficient Evidence* or *Sufficient Evidence*. Where appropriate, recommendations are provided to increase supporting evidence. Further, possible revisions are provided to indicate that they are not required but may be useful in increasing supporting evidence.

Consideration 1: Necessary and Appropriate Content

Algebra 2

- **Findings for Algebra 2:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.

Geometry

- **Findings for Geometry:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.

Physics

- **Findings for Physics 1:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Environmental Science

- **Findings for Environment Science:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.

Chemistry

- **Findings for Chemistry:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.

Consideration 2: Rigorous Instruction and High Level of Expectations

Algebra 2

- **Findings for Algebra 2:** The Algebra 2 course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Algebra 2 are certified appropriately in the state of Oklahoma.

Geometry

- **Findings for Geometry:** The Geometry course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Geometry are certified appropriately in the state of Oklahoma.

Pre-Calculus

- **Findings for Pre-Calculus:** The Pre-Calculus course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Pre-Calculus are certified appropriately in the state of Oklahoma.

Calculus

- **Findings for Calculus:** The Calculus course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Calculus are certified appropriately in the state of Oklahoma.
- **Possible Revisions for Calculus:** Considering adding Pre-Calculus as a prerequisite course.

Statistics and Probability

- **Findings for Statistics and Probability:** The Statistic and Probability course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Statistic and Probability are certified appropriately in the state of Oklahoma.

Physics

- **Findings for Physics 1:** The Physics course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Physics is certified appropriately in the state of Oklahoma.

Anatomy and Physiology

- **Findings for Anatomy and Physiology:** The Anatomy and Physiology course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor of Anatomy and Physiology is certified appropriately in the state of Oklahoma.

Environmental Science

- **Findings for Environmental Science:** The Environmental Science course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Environmental Science is certified appropriately in the state of Oklahoma.

Chemistry

- **Findings for Chemistry:** The Chemistry course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Chemistry is certified appropriately in the state of Oklahoma.

AP Chemistry

- **Findings for AP Chemistry:** The AP Chemistry course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Chemistry is certified appropriately in the state of Oklahoma.

Consideration 3: Application of Learning

- **Findings for Wes Watkins Technology Center:** The copies of the Joint Program Agreements provide Sufficient Evidence regarding the expectation of application of learning.

Review of Northeast Technology Center's Academy Application

Date: March 7, 2018

Reviewed By: Robbyn Glinsmann, Director of Elementary Mathematics Education, and Megan Cannon, Director of Science and Engineering Education

Summary of Findings

The reviewed courses listed below were identified in the Application for Focused Field of Career Study in Pre-Engineering as required or available to students at the Northeast Technology Center. Only those that are not offered exclusively in Career Technology centers or in conjunction with Northeast Technology Center were reviewed.

The application has provided sufficient evidence to satisfy all considerations and is approved to provide the mathematics and science content required by the identified Focus Field of Study to sophomores, juniors, and seniors of the cooperating partner schools. In particular, the following courses are approved: Pre-Calculus, AP Calculus AB, AP Calculus BC, Physics 1, and College Physics.

Course Identified in Field of Study	Oklahoma Academic Standards Assurance	Syllabus	College Board Approval Letter ¹	Result
Pre-Calculus	-	Sufficient	-	Sufficient
AP Calculus AB	-	Sufficient	Sufficient	Sufficient
AP Calculus BC	-	Sufficient	Sufficient	Sufficient
AP Physics C: Mechanics	-	Sufficient	Sufficient	Sufficient
AP Physics I	-	Sufficient	Sufficient	Sufficient
PLTW Aerospace Engineering	-	-	-	Review Not Required
PLTW Principles of Engineering	-	-	-	Review Not Required
PLTW Digital Electronics	-	-	-	Review Not Required <i>Previously approved for science credit if taught by a certified science instructor</i>
PLTW Design and Development	-	-	-	Review Not Required

¹ Applicable for College Board Advanced Placement courses only.

PLTW Introduction to Engineering Design	-	-	-	Review Not Required
PLTW Civil Engineering and Architecture	-	-	-	Review Not Required <i>Previously approved for math credit if taught by a certified math instructor</i>

Process

Based on Title 70 §11-103.6.G.1, the State Board of Education shall “ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.” The submitted application for Northeast Technology Center was reviewed based on three primary considerations to address this mandate:

- 1) the extent to which the course addresses the **necessary and appropriate content**
 - a) Evidence Reviewed: Oklahoma Academic Standards Assurance
- 2) the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
 - a) Evidence Reviewed: Course Description, Syllabus and Identification of Certified Instructor
- 3) the extent to which there is **application of learning**
 - a) Evidence Reviewed: Joint Program Agreements

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either *Insufficient Evidence* or *Sufficient Evidence*. Where appropriate, recommendations are provided to increase supporting evidence. Further, possible revisions are provided to indicate that they are not required but may be useful in increasing supporting evidence.

Consideration 1: Necessary and Appropriate Content

AP Physics 1

- **Findings for Physics 1:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Consideration 2: Rigorous Instruction and High Level of Expectations

Pre-Calculus

- **Findings for Pre-Calculus:** The Pre-Calculus course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Pre-Calculus is certified appropriately in the state of Oklahoma.

AP Calculus AB

- **Findings for AP Calculus AB:** The AP Calculus AB course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Calculus AB is certified appropriately in the state of Oklahoma.

AP Calculus BC

- **Findings for AP Calculus BC:** The AP Calculus BC course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Calculus BC is certified appropriately in the state of Oklahoma.

AP Physics C: Mechanics

- **Findings for AP Physics C: Mechanics:** The AP Physics C: Mechanics course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Physics C: Mechanics is certified appropriately in the state of Oklahoma.

AP Physics 1

- **Findings for Physics 1:** The AP Physics 1 course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Physics 1 is certified appropriately in the state of Oklahoma.

Consideration 3: Application of Learning

- **Findings for Northeast Technology Center:** The copies of the Joint Program Agreements provide Sufficient Evidence regarding the expectation of application of learning.

Review of Canadian Valley Technology Center - Cowan and Yukon Campus' Academy Application

Date: March 22, 2018

Reviewed By: Robbyn Glinsmann, Director of Elementary Mathematics Education, and Megan Cannon, Director of Science and Engineering Education

Summary of Findings

The reviewed courses listed below were identified in the Application for Focused Field of Career Study in Pre-Engineering as required or available to students at the Canadian Valley Technology Center - Cowan and Yukon Campus. Only those that are not offered exclusively in Career Technology centers or in conjunction with Redlands Community College were reviewed.

The application has provided sufficient evidence to satisfy all considerations and is approved to provide the mathematics and science content required by the identified Focus Field of Study to sophomores, juniors, and seniors of the cooperating partner schools. In particular, the following courses are approved: Algebra 2, Trigonometry, College Algebra, Calculus 1, Physics 1, and College Physics.

Course Identified in Field of Study	Oklahoma Academic Standards Assurance	Syllabus	College Board Approval Letter ¹	Result
Algebra 2	Sufficient	Sufficient	-	Sufficient
Pre-Calculus	-	Sufficient	-	Sufficient
AP Calculus BC	-	Sufficient	Sufficient	Sufficient
AP Statistics	-	Sufficient	Sufficient	Sufficient
Pre-AP Chemistry	-	Sufficient	-	Sufficient
Anatomy & Physiology	-	Sufficient	-	Sufficient
AP Biology	-	Sufficient	-	Sufficient
AP Physics C - Electricity and Magnetism	-	Sufficient	Sufficient	Sufficient
AP Physics C - Mechanics	-	Sufficient	Sufficient	Sufficient
General Physics	Sufficient	Sufficient	-	Sufficient

¹ Applicable for College Board Advanced Placement courses only.

PLTW Principles of Biomedical Science	-	-	-	Review Not Required
PLTW Human Body Systems	-	-	-	Review Not Required
PLTW Engineering Design and Development	-	-	-	Review Not Required
PLTW Medical Interventions	-	-	-	Review Not Required
PLTW Digital Electronics	-	-	-	Review Not Required <i>Previously approved for math credit if taught by a certified math instructor</i>
PLTW Introduction to Engineering Design	-	-	-	Review Not Required
PLTW Principles of Engineering	-	-	-	Review Not Required
PLTW Aerospace Engineering	-	-	-	Review Not Required
PLTW Computer Integrated Manufacturing	-	-	-	Review Not Required

Process

Based on Title 70 §11-103.6.G.1, the State Board of Education shall “ensure that rigor is maintained in the content, teaching methodology, level of expectations for student achievement, and application of learning in all the courses taught to meet the graduation requirements.” The submitted application for Canadian Valley Technology Center - Cowan and Yukon Campus was reviewed based on three primary considerations to address this mandate:

- 1) the extent to which the course addresses the **necessary and appropriate content**
 - a) Evidence Reviewed: Oklahoma Academic Standards Assurance
- 2) the extent to which the instructor is certified to provide **rigorous instruction** and ensures a **high level of expectations** for students
 - a) Evidence Reviewed: Course Description, Syllabus and Identification of Certified Instructor
- 3) the extent to which there is **application of learning**
 - a) Evidence Reviewed: Joint Program Agreements

For courses that provided all necessary documentation, each component was reviewed based on the submitted materials and has been rated as demonstrating either *Insufficient Evidence* or *Sufficient Evidence*. Where appropriate, recommendations are provided to increase supporting evidence. Further, possible revisions are provided to indicate that they are not required but may be useful in increasing supporting evidence.

Consideration 1: Necessary and Appropriate Content

Algebra 2

- **Findings for Algebra 2:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Mathematics.

General Physics

- **Findings for General Physics:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Pre-AP Chemistry

- **Findings for General Pre-AP Chemistry:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Anatomy & Physiology

- **Findings for General Anatomy & Physiology:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

AP Biology

- **Findings for General AP Biology:** The Oklahoma Academic Standards Assurance provides Sufficient Evidence regarding the coverage of necessary and appropriate content found in the new Oklahoma Academic Standards for Science.

Consideration 2: Rigorous Instruction and High Level of Expectations

Algebra 2

- **Findings for Algebra 2:** The Algebra 2 course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Algebra 2 are certified appropriately in the state of Oklahoma.

Pre-Calculus

- **Findings for Pre-Calculus:** The Pre-Calculus course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for Pre-Calculus are certified appropriately in the state of Oklahoma.

AP Calculus BC

- **Findings for College Algebra:** The AP Calculus BC course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for AP Calculus BC are certified appropriately in the state of Oklahoma.
- **Considerations for AP Calculus AB:** Consider listing prerequisite courses on syllabus.

AP Statistics

- **Findings for AP Statistics:** The AP Statistics course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructors for AP Statistics are certified appropriately in the state of Oklahoma.

Pre-AP Chemistry

- **Findings for Physics 1:** The Pre-AP Chemistry course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Pre-AP Chemistry is certified appropriately in the state of Oklahoma.

Anatomy & Physiology

- **Findings for College Physics:** The Anatomy & Physiology course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for Anatomy & Physiology is certified appropriately in the state of Oklahoma.

AP Biology

- **Findings for College Physics:** The AP Biology course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Biology is certified appropriately in the state of Oklahoma.

AP Physics C- Electricity & Magnetism

- **Findings for College Physics:** The AP Physics C- Electricity & Magnetism course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Physics C-Electricity & Magnetism is certified appropriately in the state of Oklahoma.

AP Physics C- Mechanics

- **Findings for College Physics:** The AP Physics C- Mechanics course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for AP Physics C-Mechanics is certified appropriately in the state of Oklahoma.

General Physics

- **Findings for College Physics:** The General Physics course description, syllabus, and teacher certification provides Sufficient Evidence regarding the expectation of rigorous instruction and ensures a high level of expectations for students. The proposed instructor for General Physics is certified appropriately in the state of Oklahoma.

Consideration 3: Application of Learning

- **Findings for Canadian Valley Technology Center - Cowan and Yukon Campus:** The copies of the Joint Program Agreements provide Sufficient Evidence regarding the expectation of application of learning.

