Request for Approval with Assurances
Montana Big Sky Pathways (Programs of Study)

The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) calls for states to offer "career and technical programs of study," known as Big Sky Pathways in Montana, as an option to students and their parents when planning for and completing future coursework. These programs, at a minimum, must:

- Incorporate and align secondary and postsecondary education elements,
- Include academic and CTE content in a coordinated, non-duplicative progression of courses,
- Offer the opportunity, where appropriate, for secondary students to acquire postsecondary credits, and
- Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.

Assurances:
By my signature on this form, I assure that the proposed Big Sky Pathway submitted for approval by this high school/college satisfies the 10 stated requirements. For approval, all 10 requirements must be checked.

<table>
<thead>
<tr>
<th>Name of Big Sky Pathway (cluster level):</th>
<th>Agriculture, Food &amp; Natural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of High School:</td>
<td>Harlem Jr/Sr High School</td>
</tr>
<tr>
<td>Name of College:</td>
<td>MSU - Northern</td>
</tr>
<tr>
<td>Name of College Program:</td>
<td>Associate of Applied Science - Agriculture Technology</td>
</tr>
<tr>
<td>Name of College Lead Faculty Member:</td>
<td>Tom Welch/Bill Danley</td>
</tr>
</tbody>
</table>

REQUIREMENTS FOR APPROVAL

1. Includes all state and local graduation requirements
2. Identifies the appropriate secondary CTE, academic, and recommended elective courses offered by this high school which will prepare the student for college-level courses without remediation
3. Outlines a non-duplicative sequence of courses from grades 9-12 and from secondary to postsecondary education
4. Prepares students for entry into a postsecondary program or apprenticeship
5. Leads to an industry-recognized postsecondary credential, degree or employment
6. Includes appropriate standards and/or industry skills standards.
7. Identify standards used: Montana Content Standards for Career & Technical Education & Montana Agriculture Ed. Standards
8. Aligns with an AAS program offered by a Montana college (college of technology, community college, tribal college, MSU-Northern)
9. Links with a web-based guidance delivery system such as MCIS
10. When applicable, dual enrollment opportunities have been identified.

High School Principal's Signature: [Signature] Date: 2/23/11
H.S. Advisory Committee Member's Signature: [Signature] Date: 2/23/11

College Chief Academic Officer's Signature: [Signature] Date: 2/19/11
College Lead Faculty Member's Signature: [Signature] Date: 2/19/11

Please submit this Request for Approval form and a copy of the Big Sky Pathway Proposal to:
OPI, Career and Technical Education, P.O. Box 820891, Helena, Montana 59620-8891

OPI Specialist Approval: [Signature] Date of Approval: 2/23/11
OCHE Approval: [Signature] Date of Approval: 2/23/11

Both the college and the high school will receive a signed copy when the BSP is approved

January 2011
**HIGH SCHOOL:** Harlem Jr/Sr High School  
**COLLEGE:** MSU - Northern  
**COLLEGE DEGREE PROGRAM:** Associate Degree of Ag Technology

### Cluster Overview:
Careers in the Agriculture, Food and Natural Resources cluster involve the planning, implementation, production, management, processing, and marketing of agricultural commodities and services.

### Pathway Options:
- Food Products and Processing Systems
- Plant Systems
- Animal Systems
- Power, Structural & Technical Systems
- Natural Resources Systems
- Environmental Service Systems
- Agribusiness Systems

### Occupation Examples:
- Agricultural Chemical Dealer, Aquaculturalist, Environmental Compliance-Assurance Manager, Farm Manager, Health and Safety Sanitarian, Meat Cutter-Meat Grader, Park Manager, Produce Buyer, Recycling Technician, Wildlife Manager, Botanist, Agricultural Educator, Ecologist, Environmental Engineer, Fish and Game Officer, Bank Loan Officer, Plant Pathologist, Veterinarian

For a complete listing, go to:  
http://online.onetcenter.org/find/career;c=1&g=Go

### SUGGESTED HIGH SCHOOL COURSES

<table>
<thead>
<tr>
<th>Grade</th>
<th>Requirements</th>
<th>Electives</th>
<th>Foundation Courses</th>
<th>Pathway Courses</th>
</tr>
</thead>
</table>
| 9th   | Graduation Requirements Workforce/2-Year College Prep | English 9, Health/PE 9, Algebra I, Earth Science, Computer Skills (keyboarding) and 2.5 credits from Foundation Courses and/or other electives | Recommended CTE Cluster Foundation Courses:  
Ag I  
Family Consumer Science I  
Computer Applications I | |
|       | 4-Year MT College/Univ Prep (Rigorous Core) | English 9, Health/PE 9, Math-Geom/Alg I, Earth Science, Computer Skills (keyboarding) and 2.5 credits from Foundation Courses and/or other electives (Drivers Ed. Is recommended when age requirement is met) | Recommended Pathway Courses:  
Ag II  
Ag Welding  
Ag Construction  
Family Consumer Science II  
Business Life Skills  
Production/Fabrication  
Electronic/Graphic Comm | CTE Student Organization(s):  
FFA  
TSA  
FCCCLA  
BPA |
| 10th  | Graduation Requirements Workforce/2-Year College Prep | English 10, Health/PE 10, Geometry, World History, Biology and 2 credits from Foundation/Pathway Courses and/or other electives | | |
|       | 4-Year MT College/Univ Prep (Rigorous Core) | English 10, Health/PE 10, Math-Geom/Alg II, World History, Biology and 2 credits from Foundation/Pathway Courses and/or other electives | | |
| 11th  | Graduation Requirements Workforce/2-Year College Prep | English 11, Alg II/Alg II A, US History and 4 credits from Pathway Courses and/or other electives | | |
|       | 4-Year MT College/Univ Prep (Rigorous Core) | English 11, Alg II/Pre-Cal, US History, Chemistry/AP I and 3 credits from Pathway Courses and/or other electives | | |
| 12th  | Graduation Requirements Workforce/2-Year College Prep | English 12, Government and 5 credits from Pathway Courses and/or other electives | | |
|       | 4-Year MT College/Univ Prep (Rigorous Core) | English 12, Government, Physics/AP II, Pre-Cal/Calculus and 3 credits from Pathway Courses and/or other electives | | |

### ADVANCED LEARNING OPPORTUNITIES
High School to College/Career Linkages

**Online courses:** Montara Digital Academy - MDA  
**Other:** Supervised Agricultural Experience (SAE) and participation in appropriate FFA activities support and reinforce classroom and laboratory learning and should be a requirement for all students

### POSTSECONDARY PROGRAM OF STUDY

<table>
<thead>
<tr>
<th>Semester</th>
<th>Math</th>
<th>English</th>
<th>Major</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>13— Semester 1</td>
<td>WRIT101</td>
<td>AG101, AG102, AG150</td>
<td>IT100</td>
<td></td>
</tr>
<tr>
<td>13— Semester 2</td>
<td>M111 or M121 or M145</td>
<td>SPCH141 or SPCH142</td>
<td>AG125, AG105</td>
<td>3 credits-advisor approved electives</td>
</tr>
<tr>
<td>14— Semester 1</td>
<td>AG218, AG230, AG245, AG254</td>
<td></td>
<td></td>
<td>3 credits-advisor approved electives</td>
</tr>
<tr>
<td>14— Semester 2</td>
<td>AG204, AG244</td>
<td></td>
<td></td>
<td>6 credits-advisor approved electives</td>
</tr>
</tbody>
</table>

*December 23, 2013*
| MILITARY | • Requires diploma or GED  
• 17 with parental consent; 18 without | Air Force, Air Guard, Army, Coast Guard, Marines, and Navy  
For more information: [http://todaysmilitary.com](http://todaysmilitary.com) |
| PROFESSIONAL CERTIFICATE | • Requires diploma or GED  
• Less than 30 credits; little/no general ed credits  
• Complete in one year or less | Agri-Mechanics Machinery/Technology — MSUN |
| APPRENTICESHIP | • Requires diploma or GED  
• Must be at least 18  
• Minimum 2,000 hours of supervised experience | Farm Equipment Mechanics  
See the MT Dept of Labor website for more information: [http://wsd.dli.mt.gov/apprenticeship/default.asp](http://wsd.dli.mt.gov/apprenticeship/default.asp) |
| CERTIFICATE OF APPLIED SCIENCE | • Requires diploma or GED  
• 30-45 credits; limited general education credits  
• Complete in one year or less | Agri-Business Technology — MCC  
Agri-Mechanics Machinery/Technology — DCC  
Livestock Technology — DCC  
Natural Resource Management — FVCC |
| ASSOCIATE’S OF APPLIED SCIENCE DEGREE | • Requires diploma or GED  
• 60-72 credits; includes 15-25 general ed credits  
• Complete in two years (if prepared academically in math and English) | Agri-Business Technology — DCC  
Agri-Business Technology—Equitation — DCC  
Agricultural Science/Technology — MSUN  
Agri-Mechanics Machinery/Technology — MSUN, DCC  
Equine Studies — UM, MCC  
Natural Horsemanship — UM  
Natural Resource Management — FVCC, BFCC |
| BACCALAUREATE DEGREE | • Requires 4-year college prep for admission  
• 128 credits (approximately)  
• Complete in four years | Agriculture Business — MSU  
Agriculture Education — MSU  
Animal Science — MSU  
Biotechnology — MSU  
Environmental Horticulture — MSU  
Environmental Sciences — MSU  
Land Rehabilitation — MSU  
Land Resource Sciences — MSU  
Natural Resources & Rangeland Technology — MSU  
Plant Science — MSU  
Sustainable Food & Bio-energy Systems — MSU  
Earth Sciences — MSU  
Biological Sciences — MSU  
Biology — UM  
Environmental Studies — UM  
Forestry — UM  
Resource Conservation — UM  
Wildland Restoration — UM  
Wildlife Biology — UM  
Environmental Engineering — TECH  
Mining Engineering — TECH  
Geological Engineering — TECH  
Environmental Science — UM, SKC  
Earth Science — UMW  
Environmental Science & Forestry — SKC |

Degree and Program Inventory above may not be all inclusive.