Montana Big Sky Pathways (Programs of Study)
Agreement Valid for 2014-2015 Academic Year

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.

By my signature on this form, I verify each of the eight (8) requirements listed below are demonstrated within the Big Sky Pathways Proposal and Gap Analysis. For approval, all eight (8) requirements must be checked.

<table>
<thead>
<tr>
<th>Name of Big Sky Pathway (Cluster Level):</th>
<th>General Ag/AFNR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of School:</td>
<td>Shelby High School</td>
</tr>
<tr>
<td>Names of High School Lead Teacher &amp; Counselor:</td>
<td>Thad White &amp; Jeni Mason (Interim)</td>
</tr>
<tr>
<td>The Lead High School Teacher will be contacted if OPI has questions about this request.</td>
<td></td>
</tr>
<tr>
<td>Lead Teacher's email address:</td>
<td><a href="mailto:thad.white@shelby.k12.mt.us">thad.white@shelby.k12.mt.us</a></td>
</tr>
<tr>
<td>Lead Teacher's phone number:</td>
<td>406-434-2622 x. 2235</td>
</tr>
<tr>
<td>Name of College:</td>
<td>MSU-Northern</td>
</tr>
<tr>
<td>Name of College Program:</td>
<td>AAS Agriculture Technology</td>
</tr>
<tr>
<td>Name of College Lead Faculty Member:</td>
<td>Tom Welch &amp; Bill Danley</td>
</tr>
</tbody>
</table>

REQUIREMENTS FOR APPROVAL (IP = In Progress) YES IP NO

1. Includes all state and local graduation requirements preparing students for entry into a postsecondary program or apprenticeship.

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. Leads to an industry-recognized postsecondary credential, degree or employment.

5. Completed “Gap Analysis” with a program offered by a Montana postsecondary institution.

6. When applicable, dual enrollment, Advanced Placement, International Baccalaureate courses and CTE START (Statewide Articulations) opportunities have been identified.

7. Pathway curriculum includes appropriate state/national standards and/or industry skills standards. Identify standards used: AFNR Montana Standards for Career and Technical Education

8. Links with a web-based guidance delivery system such as Montana Career Information System (MCIS). If using something other than MCIS, please indicate:

High School Principal’s Signature: [signature] Date: 11/25/14
High School CTE Teacher’s Signature: [signature] Date: 11/25/14
High School Counselor’s Signature: [signature] Date: 11/25/14

Please submit this Approval Form with the Big Sky Pathway Proposal to the Big Sky Pathway Coordinator at the College identified above.

College Lead Faculty Member’s Signature: [signature] Date: 11/25/14

Please submit this Approval Form with the Big Sky Pathway Proposal to OPI, Career and Technical Education, P. O. Box 202301, Helena, MT 59620-2501.

OPI Approval: [signature] Date of Approval: 12-17-2014
OCHE Approval: [signature] Date of Approval: [signature]
# BIG SKY PATHWAY PROPOSAL

**Agriculture, Food & Natural Resources**

**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>Graduation Requirements</th>
<th>Pathway Options</th>
<th>Cluster Overview:</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th</td>
<td>Workforce/2-Year College Prep</td>
<td>Food Products and Processing Systems, Plant Systems, Animal Systems, Power, Structural &amp; Technical Systems, Natural Resources Systems, Environmental Service Systems, Agribusiness Systems</td>
<td>Careers in the Agriculture, Food and Natural Resources cluster involve the planning, implementation, production, management, processing, and/or marketing of agricultural commodities and services.</td>
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<tr>
<td></td>
<td>English 9, Math, Physical Science, PE 9, Career Class, Keyboarding I,II or CTE pathways specific</td>
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<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
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<tr>
<td></td>
<td>English 9, Math, Physical Science, PE 9, Career Class, Keyboarding 1,2</td>
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<tr>
<td></td>
<td><strong>CTE and/or Electives</strong></td>
<td></td>
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<tr>
<td>10th</td>
<td>Workforce/2-Year College Prep</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>English 10, Math, Biology (lab science), Recommend World History</td>
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<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
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<tr>
<td></td>
<td>English 10, Geometry, Biology, World History, PE 10</td>
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<tr>
<td></td>
<td><strong>CTE and/or Electives</strong></td>
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<td></td>
<td><strong>Other CTE courses</strong></td>
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<tr>
<td>11th</td>
<td>Workforce/2-Year College Prep</td>
<td>English 11, American History, Recommend Advanced Algebra &amp; Statistics, Recommend Advanced Biology, Recommend any CTE Courses</td>
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<tr>
<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English 11, American History, Recommend Advanced Algebra &amp; Statistics, Choose from the following, Physics, Chemistry or Advance Biology, Recommend any CTE Courses</td>
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<td><strong>CTE and/or Electives</strong></td>
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<td></td>
<td><strong>Other CTE courses</strong></td>
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<tr>
<td>12th</td>
<td>Workforce/2-Year College Prep</td>
<td>English 12, Government, Choose from one of the following Physics, Chemistry, Advanced Biology, Recommend any of the CTE Courses</td>
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<td></td>
<td>4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English 12, or AP English, Government, Recommend Trigonometry &amp; Calculus, Choose from one of the following, Chemistry, Physics, Advanced Biology, Recommend any of the CTE Courses</td>
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<tr>
<td></td>
<td><strong>CTE and/or Electives</strong></td>
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</tbody>
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## ADVANCED LEARNING OPPORTUNITIES

**High School to College/Career Linkages**

- **CTE START courses:**
- **Advanced Placement or IB courses:**
- **Dual Enrollment courses:**
- **Online courses:**

**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.
<table>
<thead>
<tr>
<th>Semester</th>
<th>Math</th>
<th>English</th>
<th>Major</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>14—Semester 1</td>
<td></td>
<td></td>
<td>AG 150 Intro to Ag Computing</td>
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<td>AGBE 105 Ag, Marketing</td>
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<td></td>
<td>AGSC 102 Agricultural Plant Science</td>
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<td>ANSC 100 Intro to Animal Science</td>
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<td>IT 100 Intro to Technology</td>
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<tr>
<td>14—Semester 2</td>
<td>M 111</td>
<td>WRIT 101 College Writing 1</td>
<td>AGBE 125 Intro to Farm Management</td>
<td>Advisor Approved Electives (6 credits)</td>
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<tr>
<td>15—Semester 1</td>
<td></td>
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<td>AGSC 218 Crop Production</td>
<td>Advisor Approved Elective (3 Credits)</td>
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<td></td>
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<td>AGSC 230 Agricultural Pest Management</td>
<td>COMX 115 Introduction to Interpersonal Communication</td>
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<td>NRSM 260 Rangeland Management</td>
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<tr>
<td>15—Semester 2</td>
<td></td>
<td></td>
<td>ANSC 202 Livestock Feeding &amp; Nutrition</td>
<td>Advisor Approved Elective (3 Credits)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>ANSC 203 Livestock Feeding &amp; Nutrition Lab</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>ENSC 245 Soils</td>
<td></td>
</tr>
</tbody>
</table>

## MONTANA POSTSECONDARY OPPORTUNITIES

**Montana University System Degree and Program Inventory:** [http://www.homepage.montana.edu/~mus/drginv/](http://www.homepage.montana.edu/~mus/drginv/)

**Your Guide to Montana’s Certificate and Associate Degree Programs:** [http://mus.edu/twyear/YourGuide.html](http://mus.edu/twyear/YourGuide.html)

### Colleges of Technology:
- BLCT — Billings;
- GFCT — Great Falls;
- HCCT — Helena;
- TECHCT — Butte;
- UMCCT — Missoula;
- CCP — Bozeman

### Community Colleges:
- DCC — Glendive;
- FVCC — Kalispell;
- MCC — Miles City

### Tribal Colleges:
- BFCC — Browning;
- CDKC — Lame Deer;
- FBCC — Hardin;
- FPCC — Poplar;
- LBHC — Crow Agency;
- SCC — Box Elder;
- SKCC — Pablo

### Four Year Colleges/Universities:
- MSU — Bozeman;
- MSUB — Billings;
- MSON — Havre;
- TECH — Butte;
- UM — Missoula;
- UMW — Dillon

### MILITARY
- Requires diploma or GED
- 17 with parental consent; 18 without

### PROFESSIONAL CERTIFICATE
- Requires diploma or GED
- Less than 30 credits; little/no general education credits
- Complete in one year or less

### APPRENTICESHIP
- Requires diploma or GED
- Must be at least 18
- Minimum 2,000 hours of supervised experience

### CERTIFICATE OF APPLIED SCIENCE
- Requires diploma or GED
- 30-45 credits; limited general education credits
- Complete in one year or less

### ASSOCIATE’S OF APPLIED SCIENCE DEGREE
- Requires diploma or GED
- 60-72 credits; includes 15-25 general education credits
- Complete in two years (if prepared academically in math and English)

### BACCALAUREATE DEGREE
- Requires 4-year college prep for admission
- 128 credits (approximately)
- Complete in four years

For more information: [http://todaysmilitary.com](http://todaysmilitary.com)

See the MT Dept of Labor website for more information: [http://wsm.dli.mt.gov/apprenticeship/default.asp](http://wsm.dli.mt.gov/apprenticeship/default.asp)

**Programs:**
- Agri-Mechanics Machinery/Technology — MSUN
- Agri-Business Technology — MCC
- Agri-Business Technology — DCC
- Agricultural Science/Technology — MSUN
- Agri-Mechanics Machinery/Technology — MSUN, DCC
- Natural Resource Management — FVCC
- Natural Resource Management — BFCC

**Departments:**
- Agriculture Business — MSU
- Agriculture Education — MSU
- Animal Science — MSU
- Biototechnology — 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 — UMW, SKC |
| Earth Science — UMW |
| Environmental Science & Forestry — SKC |

*Degree and Program Inventory above may not be all inclusive*