Montana Big Sky Pathways (Programs of Study)
Agreement Valid for 2012-2013 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>Agriculture Food &amp; Natural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of High School:</td>
<td>Libby High School</td>
</tr>
<tr>
<td>Names of High School Lead Teacher &amp; Counselor:</td>
<td>Thomas Parker</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:parker@wchs.k12.mt.us">parker@wchs.k12.mt.us</a></td>
</tr>
<tr>
<td>Lead Teacher's phone number:</td>
<td>406-726-2174 ext.16</td>
</tr>
<tr>
<td>Name of College:</td>
<td>Lakehead Community College/ACC</td>
</tr>
<tr>
<td>Name of College Program:</td>
<td>Agribusiness Technology</td>
</tr>
<tr>
<td>Name of College Lead Faculty Member:</td>
<td>Leanne Hargland</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REQUIREMENTS FOR APPROVAL (IP = In Progress)</th>
<th>YES</th>
<th>IP</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Includes all state and local graduation requirements preparing students for entry into a postsecondary program or apprenticeship.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3. Outlines a non-duplicative sequence of courses from grades 9-12 and from secondary to postsecondary education.</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>4. Leads to an Industry-recognized postsecondary credential, degree or employment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Completed &quot;Gap Analysis&quot; with a program offered by a Montana postsecondary institution.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6. When applicable, dual enrollment, Advanced Placement, International Baccalaureate courses and CTE START (Statewide Articulations) opportunities have been identified.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Pathway curriculum includes appropriate state/national standards and/or industry skills standards: Identify standards used: Montana CTE, ASNR Standards, Montana Standards for Workplace Competencies.</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>8. Links with a web-based guidance delivery system such as Montana Career Information System (MCIS). If using something other than MCIS, please indicate:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

High School Principal's Signature: 
Date: 2-2-17

High School CTE Teacher's Signature: 
Date: 2-2-12

High School Counselor's Signature: 
Date: 2-5-12

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

College Chief Academic Officer's Signature: 
Date: 3-29-12

College Lead Faculty Member's Signature: 
Date: 3-8-12

Please submit this Approval Form with the Big Sky Pathway Proposal to OPI, Career and Technical Education, P. O. Box 202501, Helena, MT 59620-2501.

OPI Approval: 
Date of Approval: 12-07-12

OCHE Approval: 
Date of Approval: 

October 2011
### Cluster Overview:
Careers in the Agriculture, Food and Natural Resources cluster involve the planning, implementation, production, management, processing, and/or 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>Course Requirements</th>
<th>CTE and/or Electives</th>
<th>Recommended CTE Cluster Foundation Course(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>9th</td>
<td>Graduation Requirements Workforce/2-Year College Prep 4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English I, Algebra I, Earth Science, Health and PE, Business Tech Application</td>
<td>VO-AG I Business Technology Applications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTE and/or Electives</td>
<td>VO-AG I, Spanish I, Band and Choir</td>
</tr>
<tr>
<td>10th</td>
<td>Graduation Requirements Workforce/2-Year College Prep 4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English II, Geometry, Biology, Health and PE, World History</td>
<td>VO-AG II VO-AG III VO-AG IV Ag Special Projects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTE and/or Electives</td>
<td>VO-AG II Spanish I, Spanish II, Band, Choir</td>
</tr>
<tr>
<td>11th</td>
<td>Graduation Requirements Workforce/2-Year College Prep 4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English III, Algebra II, US History, Lab Science- Env. Biology II or Chemistry or Phys and Anatomy</td>
<td>Other Recommended CTE Courses:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTE and/or Electives</td>
<td>Accounting, Spanish I, Spanish II, Band, Choir, Child Development, VO-AG III</td>
</tr>
<tr>
<td>12th</td>
<td>Graduation Requirements Workforce/2-Year College Prep 4-Year MT College/Univ Prep (Rigorous Core)</td>
<td>English IV, Government, Prep for Life</td>
<td>Career &amp; Technical Student Organization(s):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTE and/or Electives</td>
<td>Accounting, Spanish I, Spanish II, Band, Choir, Consumer Math, AGT Math, Prep for Life, VO-AG IV, Ag Special Projects</td>
</tr>
</tbody>
</table>

## Advanced Learning Opportunities
### High School to College/Career Linkages

### CTE START courses:

### Advanced Placement or IB courses:

### Dual Enrollment courses:

### Online courses:
- Montana Digital Academy

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>Math</th>
<th>English</th>
<th>Major</th>
<th>Other</th>
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</table>

Agriculture, Food & Natural Resources, page 1 of 3  
September 2011
<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Course Code</th>
<th>Course Name</th>
<th>Course Code</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>13—</td>
<td>WRIT101</td>
<td>NRSM101/102</td>
<td>ANSC100;</td>
<td>EQUH150; AGED140</td>
</tr>
<tr>
<td>Semester 2</td>
<td>M108</td>
<td>ANSC262; ANSC202</td>
<td>CAPP131; ECNS201</td>
<td></td>
</tr>
<tr>
<td>14—</td>
<td>AGBE278; AGBE210; AG232</td>
<td>BIOB160 or BIOB101, BIOB161 or BIOB102, ACTG101 or ACTG 201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semester 2</td>
<td>ANSC265/266</td>
<td>BIOB110; SOCI101, PSYX100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## MONTANA POSTSECONDARY OPPORTUNITIES

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

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

### 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://wvd.dli.mt.gov/apprenticeship/default.asp](http://wvd.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, MOC
- 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 — UMW, SKC  |
| Earth Science — UMW  |
| Environmental Science & Forestry — SKC  |

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