Core Learning at NOVA: Professional Readiness and Scientific Literacy*

Office of Institutional Effectiveness and Student Success
Northern Virginia Community College

Fall 2019

*Written Communication and Civic Engagement information as desired.
Overview of Presentation

1. Context for core learning assessment
   SACSCOC, SCHEV/ VCCS

2. 2019-20 Benchmarking
   and assessing professional readiness and scientific literacy
Part I:
Context for General Education/ Core Learning Assessment at NOVA
Why Is Core Learning Important?

NOVA Mission and Vision

Our Mission
With commitment to the values of access, opportunity, student success, and excellence, the mission of Northern Virginia Community College is to deliver world-class, in-person and online postsecondary teaching, learning, and workforce development to ensure our region and the Commonwealth of Virginia have an educated population and a globally competitive workforce.

Our Vision
To be a learning-centered organization that promotes student success.
Top Skills and Knowledges Employers Find Important

Effective **oral communication** 90 %
Ethical judgment and decision-making 87 %
**Work effectively with others in teams** 87 %
Apply knowledge in a real world setting 87 %
**Work independently (time management)** 85 %
Self-Motivation (proactive ideas/solutions) 85 %
**Critical thinking and analytical reasoning skills** 84 %
Effective **written communication** 78 %
Problem solve w/people from diff. backgrounds 73 %
Ability to work with numbers and statistics 55 %

Part II:

SACSCOC

and

Gen Ed/Core Learning Assessment at NOVA
SACS Accreditation for Public Accountability

• SACSCOC is NOT the reason we assess.

• SACSCOC impacts our assessment timetable.
Reaffirmation Cycle for NOVA

2012: Reaffirmation of our accreditation and recommendations

2017: 5th year interim report

2019: gather data, work on QEP topic, begin compliance audit

2020: complete audit, write Compliance Report (1st draft)

2021: Final Report, QEP, On-site visit

2022: Next Reaffirmation
SACSCOC General Education Standard: Student Achievement

The institution identifies outcomes, assesses these outcomes, and provides evidence of actively seeking improvement based on analysis of the results in the areas below:

a. educational programs (SLOs)
b. general education (CLOs)
c. academic and student services

SCHEV General Education Assessment

NOVA assess six Core Learning Outcomes:

SCHEV core competencies:
- Critical thinking
- Written communication
- Quantitative reasoning
- Civic engagement

VCCS two additional competencies:
- Professional readiness
- Scientific literacy
Part III: Benchmarking Core Learning
# Benchmarking and Evaluation Schedule

## Core Learning Objectives Assessment Cycle

<table>
<thead>
<tr>
<th>CLO</th>
<th>BENCHMARK</th>
<th>EVALUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civic Engagement</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Professional Readiness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative Literacy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Scientific Literacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written Communication</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

We are **here**

We are preparing for **here**
General Education Assessment Proposal: 2018-2019

- Departments are benchmarking:
  - Civic Engagement or
  - Written Communication
- You are gathering data this semester for CE or WC.
- CLOs and SLOs reports due to our office 9/30/2019

https://xkcd.com/ is the source for the science stick people.
General Education Assessment Proposal: 2019-2020

• Departments will Benchmark:
  – Professional Readiness or
  – Scientific Literacy

• Your program/discipline (with our help, if you like) will choose a CLO to assess.

• The Assessment Plan is due to our office fall 2019.

OUR RESEARCH SHOWS THAT, COMPARED TO THE OVERALL POPULATION, PEOPLE WHO AGREE TO PARTICIPATE IN SCIENTIFIC STUDIES ARE SIGNIFICANTLY LESS LIKELY TO CALL THE POLICE TO RESCUE THEM FROM OUR LAB.
Part IV: HOW SHOULD WE ASSESS?

How do we operationalize Core Learning Outcomes?

Specific
Measureable
Attainable
Results-Oriented
Time-Bound
Part IV: HOW SHOULD WE ASSESS?

How do we select a method?

- Matches (aligned with outcome)
- Appropriate-Targets (desired level of performance)
- Useful (feedback on student skill levels)
- Reliable and
- Effective and Efficient
Institutions’ use of Methods to Assess Core Learning Outcomes (among institutions that assess CLOs)

- **Rubrics** applied to examples of student work (Institutionally created or AAC&U VALUE rubrics) - 91%
- Culminating or **capstone projects** - 78%
- Student **surveys** and self-reports - 64%
- Locally developed **common assignments** in courses - 62%
- Locally **developed examinations** - 46%
- Standardized **national tests of general skills**, such as critical thinking - 38%
- Standardized **national tests of general knowledge**, such as science or humanities - 33%

Hart Associations, 2015
Scientific Literacy Competency (VCCS)

Scientific Literacy is the ability to apply scientific method and related concepts and principles to make informed decisions and engage with issues related to the natural, physical, and social world. (what we assess)

Degree graduates will recognize and know how to use the scientific method, and to evaluate empirical information. (how)
Scientific Literacy Outcomes

Operationalize your expected outcomes.

Scientific Literacy is the ability to apply scientific method and related concepts and principles to make informed decisions and engage with issues related to the natural, physical, and social world. Degree graduates will recognize and know how to use the scientific method, and to evaluate empirical information.

becomes: Students will research The recent Canadian discovery of the largest T-Rex on record. They will explain the process scientists used to make the find. (you Operationalize the CLO…not us)
Outcomes for Scientific Literacy may include:

• Plan, design, and conduct scientific investigations in a collaborative environment to test hypotheses.
• Communicate procedures and results, based on scientific evidence.
• Distinguish a scientific argument from a non-scientific argument.
• Explain the scientific method of inquiry that leads to evidenced-based knowledge.
• Identify the elements of research design.
# Scientific Literacy Sample Rubrics:

## SCIENTIFIC LITERACY RUBRIC

<table>
<thead>
<tr>
<th>SCORING DOMAIN</th>
<th>EMERGING</th>
<th>DEVELOPING</th>
<th>PROFICIENT</th>
<th>ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Articulate a science-related issue</strong>&lt;br&gt;What is the evidence that the student can articulate a clear issue and explain the connection between the issue and science content?</td>
<td>• The scientific, social or technological significance of the issue is unclear&lt;br&gt;• Science content contains inaccuracies</td>
<td>• The scientific, social or technological significance of the issue is general with major gaps and leads to readily available answers&lt;br&gt;• Science content is accurate and makes general connections to the issue</td>
<td>• The scientific, social or technological significance of the issue is specific with minor gaps and leads to readily available answers&lt;br&gt;• Science content is accurate and discusses specific connections to the issue</td>
<td>• The scientific, social, or technological, significance of the issue is specific and comprehensive and leads to a challenging research project&lt;br&gt;• Science content is accurate and includes a clear, detailed, and relevant discussion of the connection to the issue</td>
</tr>
<tr>
<td><strong>Make a claim</strong>&lt;br&gt;What is the evidence that the student can develop a claim?</td>
<td>• Makes an unclear claim or irrelevant claim.</td>
<td>• Makes a general and relevant claim with major lapses throughout the text.</td>
<td>• Makes a clear, specific, and consistent claim with minor lapses throughout the text.</td>
<td>• Makes a clear, specific, consistent, and logical claim throughout the text.</td>
</tr>
<tr>
<td><strong>Identify evidence</strong>&lt;br&gt;What is the evidence that the student can use evidence (textual, data, and/or multimedia) relevant to the claim?</td>
<td>• Refers to evidence that is unclear or irrelevant to the claim.&lt;br&gt;• Refers to inconsistent evidence that is irrelevant or unclear.</td>
<td>• Identifies limited or general evidence relevant to the claim.&lt;br&gt;• Mentions inconsistent evidence or counterclaims relevant to the claim.</td>
<td>• Identifies (cites) specific evidence relevant to the claim.&lt;br&gt;• Identifies (cites) inconsistent evidence or counterclaims relevant to the claim.</td>
<td>• Identifies (cites) and explains comprehensive, detailed evidence relevant to claim.&lt;br&gt;• Identifies (cites) and explains inconsistent evidence and the relevant to the claim.</td>
</tr>
<tr>
<td><strong>Justify the claim</strong>&lt;br&gt;What is the evidence that the student can analyze evidence to justify their claim and address counterclaims?</td>
<td>• Analysis of evidence to justify the claim is missing, inaccurate, or unclear.&lt;br&gt;• Analysis of counterclaim evidence to justify the claim is missing, inaccurate, or unclear.</td>
<td>• Analyzes and synthesizes evidence from multiple sources and used to justify the claim with major errors.&lt;br&gt;• Analyzes and synthesizes counterclaim evidence from multiple sources to support or refute the claim with major errors.</td>
<td>• Analyzes and synthesizes evidence from multiple sources and used to justify the claim with minor errors.&lt;br&gt;• Analyzes and synthesizes counterclaim evidence from multiple sources to support or refute the claim with minor errors.</td>
<td>• Analyzes and synthesizes evidence from multiple sources and used to accurately justify the claim.&lt;br&gt;• Analyzes and synthesizes counterclaim evidence from multiple sources to support or refute the claim.</td>
</tr>
</tbody>
</table>
### Scientific Literacy Sample Rubrics:

<table>
<thead>
<tr>
<th>SCORING DOMAIN</th>
<th>EMERGING</th>
<th>DEVELOPING</th>
<th>PROFICIENT</th>
<th>ADVANCED</th>
</tr>
</thead>
</table>
| **EVALUATE THE ARGUMENT**
What is the evidence that the student can evaluate the argument? | - Identifies the strengths OR limitations of the argument are unclear or missing. | - Identifies and evaluates the strengths OR limitations of the argument with major errors. | - Identifies and evaluates the strengths AND limitations of the argument with minor errors. | - Identifies and evaluates the strengths AND limitations of the argument. |
| **ORGANIZATION**
What is the evidence that the student can clearly communicate their argument to the intended audience? | - Argument(s) are unclear or missing. Language and tone are inappropriate to the purpose and audience. | - Arguments(s) are disorganized, underdeveloped and/or loosely sequenced with major transition gaps. Language and tone are appropriate to the purpose and audience with major lapses. | - Argument(s) are organized, sufficiently developed and logically sequenced with minor transition gaps. Language and tone are appropriate to the purpose and audience with minor lapses. | - Argument(s) are organized, well developed, and logically sequenced. Language and tone are appropriate to the purpose and audience. |
| **CONVENTIONS**
What is the evidence that the student can accurately use scientific conventions* to communicate ideas to others? | - Citations within text and/or list of references or bibliography are missing. Norms and conventions of scientific writing are missing. | - Citations within text OR list of references/bibliography are incomplete and/or inconsistent in format. Follows the norms and conventions of scientific writing with major errors. | - Citations within text AND list of references/bibliography are complete and consistent in format with minor errors. Follows the norms and conventions of scientific writing with minor errors. | - Citations within text AND list of references/bibliography are complete, consistent in format, and accurate. Follows the norms and conventions of scientific writing accurately. |

* Scientific conventions refer to the use of scientific or technical terms, visual representations, or data (qualitative or quantitative)
### Scientific Literacy Sample Rubrics:

**CSCU General Education Assessment Rubric**  
**Competency Area:** Scientific Knowledge and Understanding

**Scientific Knowledge and Understanding Goal:** Students will gain a broad base of scientific knowledge and methodologies in the natural sciences. This will enable them to develop scientific literacy, the knowledge and understanding of scientific concepts and processes essential for personal decision making and understanding scientific issues.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Scale</th>
<th>4: Highly Competent</th>
<th>3: Competent</th>
<th>2: Minimally Competent</th>
<th>1: Not Competent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Use representations and models to communicate scientific knowledge and solve scientific problems.</td>
<td></td>
<td>Use representations and models to communicate scientific knowledge and solve scientific problems.</td>
<td>Can use representations and models to communicate scientific knowledge and solve scientific problems in a given context.</td>
<td>Can use representations and models to communicate scientific knowledge but cannot use them to solve scientific problems.</td>
<td>Cannot use representations and models to communicate scientific knowledge or solve scientific problems.</td>
</tr>
<tr>
<td>3. Plan and implement data collection strategies appropriate to a particular scientific question.</td>
<td></td>
<td>Can plan and implement data collection strategies appropriate to a new or unique scientific question.</td>
<td>Can plan and implement data collection strategies appropriate to a particular scientific question.</td>
<td>Can plan and implement data collection strategies appropriate to a particular scientific question with instructor assistance.</td>
<td>Cannot plan and implement data collection strategies.</td>
</tr>
<tr>
<td>4. Articulate the reasons that scientific explanations and theories are refined or replaced.</td>
<td></td>
<td>Can articulate the reasons that scientific explanations and theories are refined or replaced.</td>
<td>Can articulate the reasons that a particular scientific explanation or theory is refined or replaced.</td>
<td>Can articulate the reasons that a particular scientific explanation or theory is refined or replaced with significant instructor prompting.</td>
<td>Cannot articulate the reasons that a particular scientific explanation or theory is refined or replaced.</td>
</tr>
<tr>
<td>5. Evaluate the quality of scientific information on the basis of its source and the methods used to generate it.</td>
<td></td>
<td>Can evaluate the quality of scientific information on the basis of its source and the methods used to generate it.</td>
<td>Can recognize valid sources and methods used to generate scientific information.</td>
<td>Can recognize valid sources of scientific information from limited choices of sources provided by an instructor.</td>
<td>Cannot recognize valid sources and methods used to generate scientific information.</td>
</tr>
</tbody>
</table>
So, what's the process?

Operationalize your expected outcomes and map the curriculum.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Core Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL 120</td>
<td>WEL 121</td>
</tr>
<tr>
<td>Intro to Welding</td>
<td>Arc Welding</td>
</tr>
<tr>
<td>WEL 122</td>
<td>Welding II (Electric Arc)</td>
</tr>
<tr>
<td>WEL 126</td>
<td>Pipe Welding I</td>
</tr>
<tr>
<td>WEL 130</td>
<td>Inert Gas Welding</td>
</tr>
<tr>
<td>Wel 150</td>
<td>Welding Drawing and Interpretation</td>
</tr>
<tr>
<td>WEL 160</td>
<td>Semi Automatic Welding</td>
</tr>
</tbody>
</table>

After each SLO, please identify [in bold] any CLO that is assessed by the SLO:

1. Perform technical work related to welding applying OSHA safety and industry standards in a work environment. [CLOs assessed by this SLO]: ??

2. Apply physics, chemistry, and basic electrical principles/power source knowledge to solve typical problems and make decisions involving welding related tasks as well as when they write and specify welding procedure. [CLOs assessed by this SLO]:

3. Fabricate a project and estimate the cost of the welding consumables and metal. [CLOs assessed by this SLO]:

4. Select appropriate filler material for compatible admixing and dilution in the writing of welding procedure for various ferrous and non-ferrous metals. [CLOs assessed by this SLO]:

5. Read and correctly interpret basic welding fabrication drawings, sketches, symbols, and/or welding specifications. [CLOs assessed by this SLO]:

Possible CLOs?
Part VI:

Professional Readiness Competency

Professional Readiness is the ability to work well with others and display situationally and culturally appropriate demeanor and behavior. (what we access)

Degree graduates will demonstrate skills important for successful transition into the workplace and (how)
Professional Readiness Outcomes may include:

- **Oral communication:** open, effective, and professional communication.
- **Workplace demeanor:** appropriate workplace and classroom demeanor.
- **Teamwork:** work effectively with others towards a common goal.
- **Creative Problem Solving:** solve challenge or problem in innovative ways.
- **Ethical Reasoning:** considering the best interests of others and the community.
- **Leadership:** discern and describe their personal leadership styles.
- **Cultural Awareness:** recognize personal experiences and biases may affect ability to lead/work with others.
Evaluate a group learning assignment:
  – Evaluations of collaborative work must be timely, transparent and systematic
  – A contract that outlines roles, communication protocols, timelines and quality standards, of all students provides structure.**Must ensure “free-loading” is difficult.
  – Evaluations may be made from the prospective of the team, the faculty member, and/or a third party.

Project Report Card:
  – Product
  – Process
  – Progress
Professional Readiness/Soft Skills:

Portfolio Assessment: a collection of work that a learner has collected, selected, organized, reflected upon, and presented to show understanding and growth over time. (Multiple soft skill assessments over the course of a class: group lab work, for ex.)

Badges: award badges based on specific soft skill use in the classroom.
## Professional Readiness Outcomes Sample Rubrics:

### Oral Presentation Rubric

<table>
<thead>
<tr>
<th>Name: __________________________</th>
<th>Score: __________</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Delivery</th>
<th>4—Excellent</th>
<th>3—Good</th>
<th>2—Fair</th>
<th>1—Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holds attention of entire audience with the use of direct eye contact, seldom looking at notes</td>
<td>Consistent use of direct eye contact with audience, but still returns to notes</td>
<td>Displays minimal eye contact with audience, while reading mostly from the notes</td>
<td>Holds no eye contact with audience, as entire report is read from notes</td>
<td>Speaks in low volume and/or monotonous tone, which causes audience to disengage</td>
</tr>
<tr>
<td>Speaks with fluctuation in volume and inflection to maintain audience interest and emphasize key points</td>
<td>Speaks with satisfactory variation of volume and inflection</td>
<td>Speaks in uneven volume with little or no inflection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content/Organization</th>
<th>4—Excellent</th>
<th>3—Good</th>
<th>2—Fair</th>
<th>1—Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates full knowledge by answering all class questions with explanations and elaboration</td>
<td>Is at ease with expected answers to all questions, without elaboration</td>
<td>Is uncomfortable with information and is able to answer only rudimentary questions</td>
<td>Does not have grasp of information and cannot answer questions about subject</td>
<td></td>
</tr>
<tr>
<td>Provides clear purpose and subject; pertinent examples, facts, and/or statistics; supports conclusions/ideas with evidence</td>
<td>Has somewhat clear purpose and subject; some examples, facts, and/or statistics that support the subject; includes some data or evidence that supports conclusions</td>
<td>Attempts to define purpose and subject; provides weak examples, facts, and/or statistics, which do not adequately support the subject; includes very thin data or evidence</td>
<td>Does not clearly define subject and purpose; provides weak or no support of subject; gives insufficient support for ideas or conclusions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enthusiasm/Audience Awareness</th>
<th>4—Excellent</th>
<th>3—Good</th>
<th>2—Fair</th>
<th>1—Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrates strong enthusiasm about topic during entire presentation</td>
<td>Shows some enthusiastic feelings about topic</td>
<td>Shows little or mixed feelings about the topic being presented</td>
<td>Shows no interest in topic presented</td>
<td></td>
</tr>
<tr>
<td>Significantly increases audience understanding and knowledge of topic; convinces an audience to recognize the validity and importance of the subject</td>
<td>Raises audience understanding and awareness of most points</td>
<td>Fails to increase audience understanding of knowledge of topic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comments: _________________________</th>
<th>____________________________</th>
<th>____________________________</th>
<th>____________________________</th>
<th>____________________________</th>
</tr>
</thead>
</table>

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# Professional Readiness/Soft Skills:

## GRADING RUBRIC - Soft Skills

<table>
<thead>
<tr>
<th></th>
<th>1 Below Expectations</th>
<th>2 Emerging Expectations</th>
<th>3 Meets Expectations</th>
<th>4 Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respect Collaboration</strong></td>
<td>Rarely participates in team activities</td>
<td>Occasionally demonstrates both respectful and helpful behavior</td>
<td>Listens and accepts the opinions of others</td>
<td>Seeks and accepts the opinions and input of others</td>
</tr>
<tr>
<td><strong>Initiative</strong></td>
<td>Needs improvement in demonstrating respectful and helpful behavior</td>
<td>Demonstrates resourcefulness and seeks assistance as necessary</td>
<td>Engagement in learning activities</td>
<td>Initiates curiosity and interest in learning</td>
</tr>
<tr>
<td><strong>Work Habits</strong></td>
<td>Rarely uses alternate resources to assist with learning</td>
<td>Sometimes persists in displaying a positive attitude</td>
<td>Consistently displays a positive attitude</td>
<td>Always punctual and prepared</td>
</tr>
</tbody>
</table>

- Acts as a leader or exemplary team member
- Consistently provides thoughtful ideas in teams
- Consistently values and encourages all members of teams
- A strong team member
- Provides thoughtful ideas in teams
- Values and encourages all team members
- Engages in team activities
- Occasionally provides thoughtful ideas in teams
- Sometimes values and encourages all team members
- Occasionally provides thoughtful ideas in teams
- Sometimes values and encourages all team members
- Seldom demonstrates curiosity in learning activities
- Rarely engages in learning activities
- Lacks perseverance
- Occasionally demonstrates curiosity and interest in learning
- Occasionally demonstrates resourcefulness and seeks assistance as necessary
- Seldom demonstrates resourcefulness and seeks assistance as necessary
- Rarely displays a positive attitude
- Needs to remain focused on task
- Does not strive to meet potential
- Needs to complete tasks and meet deadlines
- Consistently displays a positive attitude
- Always on task • Always strives to reach full potential
- Spends extra time to ensure tasks are well done
- Seldom punctual and prepared
- Occasionally tries to meet potential
- Occasionally shows improvement in displaying a positive attitude
- Sometimes stays on task • Beginning to strive to meet potential
- Inconsistent with task completion
- Occasionally punctual and prepared
- Shows improvement in displaying a positive attitude
- Sometimes stays on task • Beginning to strive to meet potential
### Collaboration & Contributions in a Team Dynamic

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fails to listen to, share with, and support the efforts of team members making accomplishing a task more difficult for the team.</td>
<td>Attempts to listen to, share with, and support the efforts of team members are limited or inconsistent.</td>
<td>Listens to, shares with, and supports the efforts of team members.</td>
<td>Consistently listens to, shares with, and supports the efforts of team members.</td>
</tr>
<tr>
<td></td>
<td>Frequently inattentive or distracting when team members talk. Requires frequent redirection by team members and/or teacher.</td>
<td>Does not always listen when team members talk and requires redirection by team members and/or teacher.</td>
<td>Listens when team members talk.</td>
<td>Leans in and actively listens when team members talk.</td>
</tr>
<tr>
<td></td>
<td>Body language does not reflect engagement in the process. Focus on leaning in, asking questions, actively listening (e.g. make eye contact).</td>
<td>Body language does not reflect engagement in the process. Focus on leaning in, asking questions, actively listening (e.g. make eye contact).</td>
<td>Attempts to engage in group tasks; however, body language does not consistently communicate interest or attention. Body language reflects engagement in the process, but there is room for improvement.</td>
<td>Body language communicates interest in team tasks and engagement in the process.</td>
</tr>
<tr>
<td></td>
<td>Rarely offers feedback. Frequently becomes impatient, frustrated, and/or disrespectful.</td>
<td>Occasionally offers feedback. At times, becomes impatient or frustrated with the process making teamwork more challenging.</td>
<td>Offers feedback and treats team members with respect. At times, becomes impatient or frustrated with the process making teamwork more challenging.</td>
<td>Offers constructive feedback, treats team members with respect, and is patient with the process.</td>
</tr>
<tr>
<td></td>
<td>Limited attempts to move between roles.</td>
<td>Limited attempts to move between roles.</td>
<td>Attempts to be flexible and move between roles; at times dominates a particular role. This is an area of potential growth.</td>
<td>Creates balance on the team moving between responsibilities without dominating any one role.</td>
</tr>
<tr>
<td></td>
<td>Does not use resources to support the team’s work.</td>
<td>Does not consistently use resources to support the team’s work.</td>
<td>Uses resources to support the team’s work.</td>
<td>Uses resources effectively to support the team’s work.</td>
</tr>
</tbody>
</table>
Resources

Yeah, I'm writing a paper and need help finding a set of books... can't remember what they're called... sounds like 'Wikipedia'...
Resources:

- SACSCOC Resource Manual for the Principles of Accreditation

- The Quality and Integrity of Undergraduate Degrees
  http://www.sacscoc.org/pdf/081705/Quality%20and%20Integrity%20of%20Undergraduate%20Degrees.pdf

- NOVA’s General Education Goals
  https://www.nvcc.edu/currcatalog/general/goals.html

- Benchmarking General Education Programs (EAB)
  http://www.shawnee.edu/academics/GEP-essential-learning-outcomes/media/Benchmarking-General-Education-Programs.pdf

- Values Rubrics Case Studies (AAC&U)
  http://www.aacu.org/value/casestudies
Resources:

  

  

- Degree Qualifications Profile:
  
Resources:

- **Burning Glass Reports** - *Slide One* (Burning Glass Technologies is an analytics software company that has cracked the genetic code of an ever-changing labor market. Powered by the world’s largest and most sophisticated database of labor market data and talent, we deliver real-time data and breakthrough planning tools that inform careers, define academic programs, and shape workforces).

- Liberal Arts students can improve employability:

- Rebuilding Middle Skills:
• **Burning Glass Reports** - *Slide Two* (Burning Glass Technologies is an analytics software company that has cracked the genetic code of an ever-changing labor market. Powered by the world’s largest and most sophisticated database of labor market data and talent, we deliver real-time data and breakthrough planning tools that inform careers, define academic programs, and shape workforces).

• Demand for Data Science Skills is Disrupting the Job Market:

• Research on Digital Skills, Digital Literacy and the Future of Work:

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Resources:


• “Colleges Reinvent Classes to Keep More Students in Science.” NYT, 2014.


• https://www.lifescied.org/doi/full/10.1187/cbe.12-03-0024


@Catlin_Tucker (A good resource, she writes a lot about education:

Resources:

https://eric.ed.gov/?id=EJ1190185

Improving Students’ Communication Skills in Physics class:
Resources:

Science Direct looks like a solid science assessment resource:


“Relationship between Language and Concept Science Notebook Scores of English Language Learners and/or Economically Disadvantaged Students.” 2015. (A study on middle-school, but the results are instructive)

https://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=0&sid=d6d536e0-dff2-4a03-9783-9cce6cd40279%40sessionmgr4010
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