



ARIZONA STATE UNIVERSITY

GENERAL STUDIES COURSE PROPOSAL COVER FORM

Course information:

Copy and paste current course information from Class Search/Course Catalog.

College/School (Select One) Department The School for the Future of Innovation in Society
Prefix FIS Number 305 Title Ways of Knowing Units: 3

Is this a cross-listed course? No If yes, please identify course(s)

Is this a shared course? No If so, list all academic units offering this course

Note- For courses that are crosslisted and/or shared, a letter of support from the chair/director of each department that offers the course is required for each designation requested.

Is this a permanent numbered course with topics? No

If yes, all topics under this permanent numbered course must be taught in a manner that meets the criteria for the approved designation(s). Chair/Director Initials (Required)

Course description: See attached

Requested designation: Literacy and Critical Inquiry-L Mandatory Review: (Choose one)

Note- a separate proposal is required for each designation.

Eligibility:

Permanent numbered courses must have completed the university's review and approval process. For the rules governing approval of omnibus courses, contact Phyllis.Lucie@asu.edu.

Submission deadlines dates are as follow:

For Fall 2016 Effective Date: October 1, 2015

For Spring 2017 Effective Date: March 10, 2016

Area(s) proposed course will serve:

A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas.

Checklists for general studies designations:

- Complete and attach the appropriate checklist
Literacy and Critical Inquiry core courses (L)
Mathematics core courses (MA)
Computer/statistics/quantitative applications core courses (CS)
Humanities, Arts and Design core courses (HU)
Social-Behavioral Sciences core courses (SB)
Natural Sciences core courses (SO/SG)
Cultural Diversity in the United States courses (C)
Global Awareness courses (G)
Historical Awareness courses (H)

A complete proposal should include:

- Signed course proposal cover form
Criteria checklist for General Studies designation(s) being requested
Course catalog description
Sample syllabus for the course
Copy of table of contents from the textbook and list of required readings/books

It is respectfully requested that proposals are submitted electronically with all files compiled into one PDF.

Contact information:

Name Jameson Wetmore E-mail Jameson.Wetmore@asu.edu Phone 480-727-0750

Department Chair/Director approval: (Required)

Chair/Director name (Typed): David Guston Date: 3/4/16

Chair/Director (Signature): [Handwritten Signature]

Arizona State University Criteria Checklist for
LITERACY AND CRITICAL INQUIRY - [L]

Rationale and Objectives

Literacy is here defined broadly as communicative competence—that is, competence in written and oral discourse. **Critical inquiry** involves the gathering, interpretation, and evaluation of evidence. Any field of university study may require unique critical skills that have little to do with language in the usual sense (words), but the analysis of written and spoken evidence pervades university study and everyday life. Thus, the General Studies requirements assume that all undergraduates should develop the ability to reason critically and communicate using the medium of language.

The requirement in Literacy and Critical Inquiry presumes, first, that training in literacy and critical inquiry must be sustained beyond traditional First Year English in order to create a habitual skill in every student; and, second, that the skill levels become more advanced, as well as more secure, as the student learns challenging subject matter. Thus, two courses beyond First Year English are required in order for students to meet the Literacy and Critical Inquiry requirement.

Most lower-level [L] courses are devoted primarily to the further development of critical skills in reading, writing, listening, speaking, or analysis of discourse. Upper-division [L] courses generally are courses in a particular discipline into which writing and critical thinking have been fully integrated as means of learning the content and, in most cases, demonstrating that it has been learned.

Notes:

1. ENG 101, 107 or ENG 105 must be prerequisites
2. Honors theses, XXX 493 meet [L] requirements
3. The list of criteria that must be satisfied for designation as a Literacy and Critical Inquiry [L] course is presented on the following page. This list will help you determine whether the current version of your course meets all of these requirements. If you decide to apply, please attach a current syllabus, or handouts, or other documentation that will provide sufficient information for the General Studies Council to make an informed decision regarding the status of your proposal.

Revised April 2014

Proposer: Please complete the following section and attach appropriate documentation.

ASU - [L] CRITERIA		
TO QUALIFY FOR [L] DESIGNATION, THE COURSE DESIGN MUST PLACE A MAJOR EMPHASIS ON COMPLETING CRITICAL DISCOURSE--AS EVIDENCED BY THE FOLLOWING CRITERIA:		
YES	NO	Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 1: At least 50 percent of the grade in the course should depend upon writing assignments (see Criterion 3). Group projects are acceptable only if each student gathers, interprets, and evaluates evidence, and prepares a summary report. <i>In-class essay exams may not be used for [L] designation.</i></p> <p style="text-align: right;">Syllabus</p>
<p>1. Please describe the assignments that are considered in the computation of course grades--and indicate the proportion of the final grade that is determined by each assignment.</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-1</p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 2: The writing assignments should involve gathering, interpreting, and evaluating evidence. They should reflect critical inquiry, extending beyond opinion and/or reflection.</p> <p style="text-align: right;">Syllabus</p>
<p>1. Please describe the way(s) in which this criterion is addressed in the course design.</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-2</p>		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<p>CRITERION 3: The syllabus should include a minimum of two writing and/or speaking assignments that are substantial in depth, quality, and quantity. Substantial writing assignments entail sustained in-depth engagement with the material. Examples include research papers, reports, articles, essays, or speeches that reflect critical inquiry and evaluation. Assignments such as brief reaction papers, opinion pieces, reflections, discussion posts, and impromptu presentations are not considered substantial writing/speaking assignments.</p> <p style="text-align: right;">Syllabus</p>
<p>1. Please provide relatively detailed descriptions of two or more substantial writing or speaking tasks that are included in the course requirements</p>		
<p>2. Also:</p> <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center; margin: 10px auto; width: 80%;"> <p style="background-color: yellow;">Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p> </div> <p style="text-align: left;">C-3</p>		

ASU - [L] CRITERIA

YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	CRITERION 4: These substantial writing or speaking assignments should be arranged so that the students will get timely feedback from the instructor on each assignment in time to help them do better on subsequent assignments. <i>Intervention at earlier stages in the writing process is especially welcomed.</i>	Syllabus
1. Please describe the sequence of course assignments--and the nature of the feedback the current (or most recent) course instructor provides to help students do better on subsequent assignments			
2. Also: <div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center; margin: 10px auto; width: fit-content;"><p>Please circle, underline, or otherwise mark the information presented in the most recent course syllabus (or other material you have submitted) that</p></div> <p>C-4</p>			

Course Prefix	Number	Title	General Studies Designation
FIS	305	Ways of Knowing	L

Explain in detail which student activities correspond to the **specific** designation criteria.
Please use the following organizer to explain how the criteria are being met.

Criteria (from checklist)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
1	50 percent of grade will come from two main writing assignments: A series of 4 Critical Essays and a series of assignments leading to a final Research Design Paper.	20% of the student's grade will come from a series of 4 critical essays. The first draft of the research design paper is worth 10%. And the final draft of the revised research design paper is worth 20% of the course's overall grade.
2	The two main writing assignments, the Critical Essays and the Final Resarch Design are based on gathering and evaluating research reports/articles. There will also be peer reviews built into the process.	Central to both of these assignments is that students will search and identify relevant research articles, and interpret and evaluate them in terms of how knowledge has been created and communicated. The peer reviews will be implemented in the research design development process, particularly in the problem statement phase where students can reflect and assist each other with how they are defining and framing problems for research.
3	The Research Design Paper is built stage after stage through the course. The series of assignments that lead to the final Research Design Paper allow students to think through, critique, get feedback, and revise their work as they come to understand their topics better.	The first step of the Research Design Paper is a draft due during week 10 after the students have been introduced to a series of research approaches from a variety of disciplines. They will get feedback on those draft papers and in week 13 have to present their research to the rest of the class in a formal presentation. All students are assigned to write up "peer reviews" of the presentations they watch. Each student will take this feedback (along with the written comments from the professor on their first draft) into account as they write the final version of their Research Design Paper..
4	Students are asked to write early and often in this class so that they can get feedback on their work at the earliest stages. Several assignments are also iterative, with faculty giving written feedback on draft versions of papers so that students can better revise their work for the final version.	The 4 Critical Essays due during the first eight weeks of the course are positioned to give the studnets ample feedback from the professor at the beginning of the course. The first Critical Essay is also iterative. Students will get comments on the first Essay and have to rewrite it completely as their Second Critical Essay. Students will also get extensive written comments from the professor on their draft Research Design paper due in week 10, giving them several weeks to take these suggestions into account for their final Research Design paper due in week 14. This will allow very early assesement of written expression, beginning with the first paper in Week 2 ,so that students can receive feedback on their writing,

		including the identification of students that might need additional help from the Writing Center.
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FIS 305 Ways of Knowing Course description: Students research, beginning with the concept of research itself and its various purposes, highlighting knowledge and how it is created in different disciplinary approaches. Exposes historical and philosophical underpinnings of how research is conceptualized, presented and implemented, including what constitutes information, knowledge and evidence. Introduces material that is in a traditional research design and methodology course; however, the emphasis uniquely focuses on knowledge creation, innovation, the nature of disciplinary knowledge and its impact on society. Explores the epistemological differences in problem identification and approaches to inquiry in the disciplinary perspectives of engineering, the sciences and in the social sciences.

FIS 305 Ways of Knowing

FIS 305

Prof. Mary Jane C. Parmentier

Mj.parmentier@asu.edu 480-727-1156

Office: Interdisciplinary B, Room 366

Office Hours: MTWHF 0:00-0:00 or by appointment

Course description:

A core requirement in the B.S. and B.A. in Innovation in Society, this course introduces students to research, beginning with the concept of research itself and its various purposes, highlighting knowledge and how it is created in different disciplinary approaches. Students will be exposed to historical and philosophical underpinnings of how research is conceptualized, presented, and implemented, including what constitutes information, knowledge and evidence. While material that would be in a traditional research design and methodology course will be introduced in this course, the emphasis will uniquely focus on knowledge creation, innovation, the nature of disciplinary knowledge, and its impact on society. The epistemological differences in problem identification and approaches to inquiry will be explored in the disciplinary perspectives of engineering, the sciences, and in the social sciences.

Course objectives:

The overall goals of the course are to provide students with an understanding of research and its place in innovation and social change, understand the historical social and political context of research and knowledge creation, and to gain the skills necessary to evaluate research and design their own inquiries.

- Students will recognize and identify how knowledge is created, presented, and utilized in different eras, cultures, and disciplines.
- Students will be challenged to formulate research questions relevant to the intersection of innovation, society and the future, and consider various methods of inquiry.
- Students will compare methods of inquiry and knowledge creation from diverse disciplines.
- Students will evaluate current research, including central questions of inquiry, methods selected, and analysis of the data, in media accounts and academic publications.

Learning Outcomes:

- Students will analyze and evaluate (C-2) selected research literature, culminating in critical essays (C-1, C-3)) that focus on the questions, methods, and knowledge creation.
- Students will conduct peer reviews orally in class and in written assignments (C-1, C-2, C-3)).
- Students will raise their own research questions and design an appropriate research plan for a selected question(s), culminating in a research design paper. (C-1, C-3)

- Students will demonstrate through oral and written expression (C-1, C-3) the ability to critically evaluate (C-2) how research is undertaken, how it impacts policy and innovation, and how research on innovation in society could lead to different futures.

Course Requirements:

Students will be engaged in activities throughout the course to create meaningful connections between the assigned reading and the real world, such as identifying how research is conducted and reported in the media on problems that affect their lives, how one constructs a research design, and how to find and evaluate past research and build on that knowledge.

Participation in Lecture	10%
Critical Essays	20%(C-1, C-2, C-3)
First Exam	10%
Draft of Research Design Paper	10% (C-1, C-2, C-4)
Final Research Design Paper	20%(C-1, C-2, C-3)
Peer Reviews	10% (C-2)
Research Design Presentation	10%
Final Exam	10%
Total	= 100%

Barrett students interested in adding an **honors contract** to the class should contact the instructor in the first week of classes.

Grading Scale:

A-/ A/ A+	90.0-92.4/ 92.5-97.9/ 98-100	Excellent
B- /B/ B+	80.0-82.4/ 82.5-87.4/ 87.5-89.9	Good
C/ C+	70.0-77.4/ 77.5-79.9	Average
D	60.0-69.9	Passing
E	<60	Failure
XE		Failure due to Academic Dishonesty

[Note: in order to receive University Distribution requirement, credit you must earn at least a “C.”]

Written Assignments

Critical Essays (C-1, C-2, C-3)

In order to gain an appreciation for how research is conducted and reported in different disciplines, a significant part of the overall grade will come from four analytical written assignments that involve selecting published research (2-3 journal articles) from science, engineering and the social sciences. The first two essays will be a draft and revision of the same paper in order to provide feedback early on in the course to each writer. The essays will be critical analyses which evaluate, for each piece of research literature analyzed, the formulation of the research problem, methodologies used, and the interpretation of results. These papers are to be around 3-5 pages, double-spaced and are due every other week at the beginning of the course, enabling early assessment of writing and analysis of each student. All citations and lists of sources should be complete, and follow the American Psychological Association (APA) style format.

Final Research Design Paper: (C-1, C-2, C-3)

This paper, from 5-10 pages, will be a research proposal based on the student's research question that involved the intersection of society, technology, and/or science, to include a brief literature review and proposed methods for carrying out the research. An earlier draft will be due in order to provide feedback to allow each student to improve and edit their papers for the final submission. The paper should reflect an awareness of the process and significance of problem identification, and understanding of where to find relevant published research on the problem, and the proposed methods should reflect an understanding of appropriate application of the method used. All citations and lists of sources should be complete, and follow the American Psychological Association (APA) style format.

Peer Reviews: (C-2)

Peer reviews will be conducted with online written and in class oral reviews of each student's research design as it develops, particularly in the problem development phase. The written online reviews will facilitate the process of providing constructive feedback between students, culminating in an oral review at the end of the course. A peer review is to be a constructive evaluation of the ideas presented, and the clarity of those ideas.

Course Calendar and Assigned Reading:

Texts:

- Brown, V. et al. (2010). *Tackling Wicked Problems: Through the Transdisciplinary Imagination*. Routledge.
- Moses, J. & Torbjorn, K. (2012). *Ways of Knowing: Competing Methodologies in Social and Political Research*. Palgrave Macmillan
- Repko, A. (2011). *Interdisciplinary Research: Process and Theory*. SAGE Publications

(Assigned readings will also include published research on topics engaging for the students, from different disciplines, and timely media reporting on a wide variety of research.)

Weekly Topics:

1. What is research and its purposes?

- Reading: Repko

2. Epistemology and methodology: knowledge, evidence, etc.

- Reading: Moses & Torbjorn
- Critical Essay 1 – First Draft (C-4) due

3. History of research and research methods, focus on statistics

- Reading: Moses & Torbjorn

4. Scientific inquiry - history, Kuhn, application to social sciences

- Reading: Brown and Repko, plus supplemental reading
- Critical Essay 1 – Final Draft (C-4) revised due

5. Engineering inquiry and innovation

- Reading: supplemental reading

6. Social Science approaches

- Readings: **Brown** and **Repko**
- **Critical Essay 2 (C-4) due**

7. Quantitative research—power of statistics

- Readings **Moses & Torbjorn**

8. Qualitative research – social science disciplinary approaches

- Readings: **Moses & Torbjorn**, **Brown**, and **Repko**
- **Critical Essay 3 (C-4) due**

9. First Exam

10. Transdisciplinary Research

- Readings: **Repko** and **Brown**
- **Draft of Final Research Design Paper (C-4) due**

11. Formulating questions about innovation in society

- Readings: **Brown**
- **Peer Reviews due**

12. Evaluating methodologies and methods

- Reading **Moses & Torbjorn**, selected research articles

13. Final research design presentations and discussions

14. Final Research Design Paper Due

Final Exam to be held during Finals Week

This syllabus is subject to change. It is your responsibility to read e-mail updates from the instructor and TAs as well as check the blackboard site for alterations made as events occur.

Incompletes: A mark of "I" (incomplete) can be given by the instructor when you are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. You are required to arrange with the instructor for the completion of the course requirements. The arrangement must be recorded using the form at <http://students.asu.edu/forms/incomplete-grade-request>. Students should be proactive and discuss this with their instructor and TA before the end of the semester. Students who do not complete this form before the end of the semester cannot be given an incomplete and will be awarded a grade based on the work they have completed.

Late Assignments: Late assignments will have 1/3rd of a letter grade deducted each day they are late. Advanced written or e-mailed notice that you will miss a class or have to turn in an assignment late could help your cause.

Grade Appeals: ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see: <http://catalog.asu.edu/appeal>

Student Standards: Students are required to read and act in accordance with university and Arizona Board of Regents policies, including: The ABOR Code of Conduct: Arizona Board of Regents Policies 5-301 through 5-308: <http://www.azregents.edu/policymanual/default.aspx>

Professionalism in the Classroom: While learning happens throughout ASU, the classroom is a particularly important focal point. Students are asked to contribute to a collegial atmosphere where ideas can be exchanged, discussed, and debated freely by avoiding disruptions through their own behavior and the distractions of their technology. Disruptive, threatening or violent behavior will be dealt with according to the policies in the Student Services Manual, [SSM 104-02](#). Students wishing to record lectures electronically must first get permission from the instructor.

It is impossible to learn from your fellow students when you or they are not there. As such attendance is required in this course. Should you have to miss a class, contact your instructor as far in advance as possible. Depending on the nature of the absence the instructor may elect to deduct points from your overall grade. Absences can be excused for religious observances or practices that are in accord with [ACD 304-04](#) or university sanctioned events/activities that are in accord with [ACD 304-02](#).

Academic Integrity: Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see <http://provost.asu.edu/academicintegrity>.

If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, school, and/or dean. Academic dishonesty includes borrowing ideas without proper citation, copying others' work (including information posted on the internet), and failing to turn in your own work for group projects. Please be aware that if you follow an argument closely, even if it is not directly quoted, you must provide a citation to the publication, including the author, date, and page number. If you directly quote a source, you must use quotation marks and provide the same sort of citation for each quoted sentence or phrase. You may discuss assignments with other students, however, all writing that you turn in must be done independently. If you have any doubt about whether the form of cooperation you contemplate is acceptable, ask the TA or the instructor in advance of turning in an assignment. Please be aware that the work of all students submitted electronically can be scanned using SafeAssignment, which compares them against everything posted on the internet, online article/paper databases, newspapers and magazines, and papers submitted by other students. Turning in an assignment (all or in part) that you completed for a previous class is considered self-plagiarism and falls under these guidelines. Any infractions of self-plagiarism are subject to the same penalties as copying someone else's work without proper citations. Students who have taken this class previously and would like to use the work from previous assignments should contact the instructor for permission to do so.

Prohibition of Commercial Note Taking Services: In accordance with [ACD 304-06 Commercial Note Taking Services](#), written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

Student Support and Disability Accommodations: In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities. [Qualified students with disabilities may be](#)

[eligible to receive academic support services and accommodations](#). Eligibility is based on qualifying disability documentation and assessment of individual need. Students who believe they have a current and essential need for disability accommodations are [responsible for requesting accommodations and providing qualifying documentation](#) to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities. Qualified students who wish to request an accommodation for a disability should contact their campus DRC at: <http://www.asu.edu/studentaffairs/ed/drc/> If you are a student in need of special arrangements we will do all we can to help, based on the recommendations of these services. For the sake of equity for all students, we cannot make any accommodations without formal guidance from these services.

Sexual Violence and Harassment: Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <http://sexualviolenceprevention.asu.edu/faqs/students>.

Drop and Add Dates/Withdrawals: Please refer to the [academic calendar](#) on the deadlines to drop/withdraw from this course. Consult with your advisor and notify your instructor if you are going to drop/withdraw this course. If you are considering a withdrawal, review the following policies: [Withdrawal from Classes](#), [Medical/Compassionate Withdrawal](#).

Email Communications

All email communication for this class will be done through your ASU email account and the blackboard site. You should be in the habit of checking your ASU email regularly as you will not only receive important information about your class(es), but other important university updates and information. You are solely responsible for reading and responding if necessary to any information communicated via email. For help with your email go to: http://help.asu.edu/sims/selfhelp/SelfHelpHome.seam?dept_pk=822 and file a help desk ticket by clicking on “My Help Center.”

Campus Resources: As an ASU student you have access to many resources on campus. This includes tutoring, academic success coaching, counseling services, financial aid, disability resources, career and internship help and many opportunities to get involved in student clubs and organizations.

Tutoring: <https://tutoring.asu.edu/tutoring>

Counseling Services: <http://students.asu.edu/counseling>

Financial Aid: <http://students.asu.edu/financialaid>

Major/Career Exploration: <https://cls.asu.edu/majorexploration>

Career Services: <http://students.asu.edu/career>

Student Organizations: <http://www.asu.edu/studentaffairs/mu/clubs/>

FIS 305 Copy of Table of Contents from Required Texts

Repko, A. (2011). *Interdisciplinary Research: Process and Theory*. SAGE Publications

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Chapter 2. Mapping the Drivers of Interdisciplinarity

Part II. Drawing on Disciplinary Insights

Chapter 3. Beginning the Research Process

Chapter 4. Introducing the Disciplines

Chapter 5. Identifying Relevant Disciplines

Chapter 6. Conducting the Literature Search

Chapter 7. Developing Adequacy in Relevant Disciplines

Chapter 8. Analyzing the Problem and Evaluating Insights

Part III. Integrating Insights

Chapter 9. Understanding Integration

Chapter 10. Identifying Conflicts Between Insights

Chapter 11. Creating Common Ground Between Concepts

Chapter 12. Creating Common Ground Between Theories

Chapter 13. Constructing a More Comprehensive Understanding or Theory

Chapter 14. Reflecting on, Testing, and Communicating the Understanding

Moses, J. & Torbjorn, K. (2012).
*Ways of Knowing: Competing
Methodologies in Social and
Political Research*. Palgrave
Macmillan

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Tackling Wicked Problems

Through the Transdisciplinary Imagination

Edited by

Valerie A. Brown, John A. Harris and Jacqueline Y. Russell



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