<table>
<thead>
<tr>
<th>No.</th>
<th>Course code &amp; title</th>
<th>Teacher(s)</th>
<th>Minimum requirement for attendance</th>
<th>Eligibility (for enrolment in Primary Discipline Courses by all MPhil/PhD/EdD students in Faculty of Education)</th>
<th>Cross-institutional course enrolment (i.e. Open to MPhil/PhD from other institutions in Hong Kong)</th>
<th>Primary discipline (24 hrs)/Research methods (12 hrs)</th>
<th>Tentative schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>EDUR8015 Theory and Inquiries of Chinese Language Education in the 21st century</strong> <em>(New offering)</em>&lt;br&gt;<em>Note: This course will be conducted in Cantonese and Putonghua (Mandarin).</em></td>
<td>C H Lin, D Y K Law, W M Cheung</td>
<td>Nil</td>
<td>No &lt;br&gt; (Open to MPhil/PhD/EdD students with research interests in Chinese Language Education only)</td>
<td>No</td>
<td>3 hrs X 8 sessions</td>
<td>Date: Jan 20;&lt;br&gt; Feb 3, 10, 17, 24;&lt;br&gt; Mar 2, 23 and 30, 2020 (Mon)&lt;br&gt; Time: 6:30-9:30 p.m.&lt;br&gt; Venue: Rooms 703-704, Meng Wah Complex (MW703-704)</td>
</tr>
<tr>
<td>2</td>
<td><strong>EDUR8023 Critical Inquiry in Language and Education Studies</strong> <em>(Former title: EDUR8023 Seminars on Critical Inquiry in Language and Education Studies)</em> <em>(Re-offering with modifications)</em></td>
<td>M M Lo</td>
<td>10 out of 12 sessions</td>
<td>Yes</td>
<td>No</td>
<td>2 hrs X 12 sessions</td>
<td>Date: Jan 21;&lt;br&gt; Feb 4, 11, 18, 25;&lt;br&gt; Mar 3, 17, 24, 31;&lt;br&gt; Apr 7, 14 and 28, 2020 (Tue)&lt;br&gt; Time: 6:30-8:30 p.m.&lt;br&gt; Venue: Room 202, Runme Shaw Building (RM202)</td>
</tr>
<tr>
<td>3</td>
<td><strong>EDUR8052 Equity and Social Justice in Education</strong> <em>(Re-offering with modifications)</em></td>
<td>G A Postiglione</td>
<td>100%</td>
<td>Yes</td>
<td>Yes</td>
<td>3 hrs X 8 sessions</td>
<td>Date: Feb 5, 12, 19, 26;&lt;br&gt; Mar 4, 18, 25; and Apr 1, 2020 (Wed)&lt;br&gt; Time: 6:30-9:30 p.m.&lt;br&gt; Venue: Rooms 550, Meng Wah Complex (MW550)</td>
</tr>
<tr>
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<td><strong>Primary Discipline Courses:</strong></td>
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</table>
| 4   | EDUR8060 Methodological Issues in Educational Research: Experiences from International and Local Projects *(Re-offering with modifications)* | I A C Mok (coordinator), F K S Leung, V W Y Yip | Nil                                | Yes                                                                                                               | No                                                                                                                 | 3 hrs X 8 sessions                                      | Date: Feb 6, 13, 20, 27; Mar 5, 19, 26; and Apr 2, 2020 (Thur)  
Time: 6:30-9:30pm  
Venue: Room 302, Runme Shaw Building (RM302) |
| 5   | EDUR7072 Text Analytics in Education *(Re-offering with modifications)*              | X Hu                       | Nil                                | NA                                                                                                                | Yes                                                                                                                | 2 hrs X 6 sessions                                      | Date: Feb 1, 8, 15, 22, 29 and Mar 7, 2020 (Sat)  
Time: 10:00am-12:00nn  
Venue: Room 203, Runme Shaw Building (RM203) |
| 6   | EDUR7103 Structural Equation Modeling I: Factor Analysis *(Former title: Factor Analysis) *(Re-offering with modifications)* | F Reichert                  | Nil                                | Yes, need to provide evidence that they meet pre-requisite                                                      | 3 hrs X 4 sessions                                            |                                                           | Date: Feb 5, 12, 19 and 26, 2020 (Wed)  
Time: 6:30-9:30pm  
Venue: Room 3.41, The Jockey Club Tower, Centennial Campus (CPD3.41) |
<table>
<thead>
<tr>
<th>No.</th>
<th>Course code &amp; title</th>
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<th>Eligibility (for enrolment in Primary Discipline Courses by all MPhil/PhD/EdD students in Faculty of Education)</th>
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<th>Primary discipline (24 hrs)/Research methods (12 hrs)</th>
<th>Tentative schedules</th>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>EDUR7104 Structural Equation Modeling II: Latent Variable Regression Models with Cross-sectional and Longitudinal Data (Former title: Structural Equation Modeling) <em>(Re-offering with modifications)</em></td>
<td>F Reichert</td>
<td>Nil</td>
<td>Yes, need to provide evidence that they meet prerequisite</td>
<td></td>
<td>3 hrs X 4 sessions</td>
<td>Date: Mar 4, 18; Apr 1 and 8, 2020 (Wed) Time: 6:30-9:30pm Venue: Room 3.41, The Jockey Club Tower, Centennial Campus (CPD3.41)</td>
</tr>
</tbody>
</table>
EDUR8015 Theory and Inquiries of Chinese Language Education in the 21st century
(Semester 2, 2019-20)

Teacher(s):
Dr Chin-Hsi Lin, Dr. Doris Y K Law, Dr Wai Ming Cheung

Course objectives:
The course aims at giving MPhil/PhD/EdD students with research interests in Chinese Language Education an in-depth overview of Chinese research and advance research methods in the field. Specifically, the purpose of this course is two-fold: 1) to provide a comprehensive overview of Chinese research, and 2) to understand a wide range of research methods used in reading research.

Minimum requirement for attendance:
Nil

Pre-requisite:
Nil

Course structure:
The course is organized in eight main topics in Chinese reading research. For each topic, the instructors will select key readings and guide students to understand the content as well as research methods used in the reading.

Key readings:


Outcome:
Upon the completion of this course, students should be able to:

1) Describe the status quo of Chinese research;
2) Understand common research methods used in Chinese research;
3) Evaluate the design, methods, and analysis of Chinese research;
## Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Outcome(s) to be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class presentation (15%)</strong></td>
<td>O1</td>
</tr>
<tr>
<td>At the first session of the class, each student will sign up two topics that they will be presenting in the corresponding week. Readings will be assigned, but students are encouraged to find alternative articles to present (with the instructors’ approval). Presentation time will be around 8 to 10 minutes.</td>
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<tr>
<td><strong>Article critique (15%)</strong></td>
<td>O2, O3</td>
</tr>
<tr>
<td>Each student is required to critically evaluate two papers relate to their research interests or their research proposal and write a 500-hundred-word critique.</td>
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</tr>
<tr>
<td><strong>Small-scale educational research (70%)</strong></td>
<td>O1, O2, O3</td>
</tr>
<tr>
<td>Each student is required to design a small-scale educational study, carry it out, and write a paper using APA format. Key focus will be placed on the alignment of research questions, methods, analysis, and the results. Discussions should link to prior studies and implications are encouraged to be included in the paper. (4,000 words)</td>
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</tbody>
</table>

*Note: Students are required to pass all assessments in order to pass the course.*

*Version as at July 8, 2019*
Teacher(s):
Dr Margaret M Lo

Course objectives:
This course aims at introducing participants to a variety of critical social approaches to inquiry in language and education studies through a range of exemplifying studies that illustrate how researchers can adopt critical theoretical lenses and methodologies in designing their research studies and conducting their research analysis. The philosophical orientations and theoretical assumptions underlying critical inquiry will be discussed and a range of approaches as applied to language and education studies will be included. Sessions will engage course participants in unpacking critical social theories, engaging in critical analyses of data, and exploring the debates within critical research. With reference to participants’ own research, a range of ways in which critical inquiry can be conceptualized, designed and conducted in language and education studies will be examined.

Minimum requirement for attendance:
10 out of 12 sessions

Note: Students who fail to meet the minimum requirement for attendance will fail the course.

Pre-requisite:
Nil

Course structure:
Part 1: Philosophical and theoretical foundations of critical social research (Sessions 1-5)

In these sessions participants will examine what it means for educational research – and researchers - to be ‘critical’. The ontological and epistemological assumptions, historical development, and recent trends in critical social research in language education will be discussed. Key concepts such as ideology, discourse, and power will be explored in relation to language education. The selected writings of key critical social theorists including Freire, Bourdieu, Bakhtin, Butler and Foucault will be unpacked.

Part 2: Critical research studies in language and education (Sessions 6-8)

In these sessions participants will read and discuss critical research studies in language and education. Works which exemplify theories discussed in part one and illuminate recent and current issues and debates in English language education will be discussed including studies of critical literacy and critical pedagogy in school contexts, critical praxis research; discourse analytic studies and classroom based research.

Part 3: Critical research strategies and issues in critical research (Sessions 9-12)

These sessions will introduce participants to some of the research designs, strategies, issues and concerns when conducting critical social research in language education. Ideological and linguistic approaches to discourse analysis, participatory action research, and critical ethnography will be discussed. The nature and importance of reflexivity will be examined,
and ethical issues fundamental to critical research will be discussed. Participants will have opportunities in each session to discuss their own research in relation to the topics.

**Key readings:**


Outcomes:
Participants should be able to:
1) explain the theoretical and philosophical orientations underlying critical inquiry in language and education studies,
2) explain different conceptualizations of criticality and their implications for inquiry in different areas of language and education studies, and
3) analyse studies that adopt critical approaches to research in language and education studies, and
4) analyse textual and other research data from critical theoretical perspectives.

Assessment:

<table>
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<tr>
<th>Assessment</th>
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<tbody>
<tr>
<td>The summative assessment will consist of a critical paper (2500 words) in</td>
<td>O1, O2, O3, O4</td>
</tr>
<tr>
<td>which participants undertake a detailed critical analysis of</td>
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<tr>
<td>- a limited and defined body of educational research in one’s own area</td>
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<tr>
<td>of interest, OR</td>
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<tr>
<td>- a limited set of data from one’s own educational research (or another</td>
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<tr>
<td>set of data you have access to) in light of the critical concepts and</td>
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<tr>
<td>approaches discussed in the course. The paper should include the following:</td>
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<tr>
<td>1. explain the theoretical orientations underlying the analysis</td>
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<tr>
<td>2. explain different conceptualizations of criticality and their</td>
<td></td>
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<tr>
<td>implications for the inquiry/analysis</td>
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<tr>
<td>3. analyse an educational problem and/or educational data using critical</td>
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</tr>
<tr>
<td>strategies and theoretical perspectives</td>
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<tr>
<td>4. demonstrate reflexivity in the analysis</td>
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</tbody>
</table>

(Version as at July 8, 2019)
Teacher(s):
Professor Gerard A Postiglione

Course objectives:
This course takes students into critical analysis of equity and social justice issues related to ability, gender, sexuality, religion, racism, social class, poverty, and other forms and patterns of social and economic inequality. It works with students to help them build an understanding of both theory and research methods that enlightens both policies and practices across geographical levels from local to global. This include beginning with basic concepts related to the social construction of identity and an application of concepts to analyze equity issues, as well as systematic features of societies that perpetuate inequality and hinder social injustice. The course takes in interest in social and cultural belief systems that weigh upon the decisions that either protect or diminish social justice in education. The analysis will include the key axes of power and privilege in various social settings, both contemporary and historically based, as well as the way that prejudice, discrimination, and oppression operate in social and educational settings.

Minimum requirement for attendance:
All sessions, unless substantiated by a medical or other special purpose that is approved by the course lecturer.

Pre-requisite:
Nil

Course structure:
1. Introduction: Who are the Chosen? Who are the Marginalized?
2. Structures and processes of equity and social justice
3. Social diversity and oppression
4. Critical theories, critical pedagogies
5. Discourses of fear and hurt vs. discourses of respect and empowerment.
6. Theories of social equity and justice: Marx, Rawls, Bordieu, etc.
7. Methodological sophistication: Quantitative
8. Critiquing methodological: Qualitative

Key readings:

Outcome:
1) Students will design a format to promote equity, cultural diversity and social justice for a particular educational setting that is grounded in theoretical and practical knowledge.
2) Students will demonstrate how empirical research can be used to ensure that educational practices improve social justice.
3) Students will justify how and why certain forms of knowledge are capable of creating educational environments that promote a fair, just, diverse, equitable and inclusive educational community.

4) Students will design empirical research that deals with poverty, gender, race and ethnicity in a specific setting and apply concepts of social and cultural capital in analyzing educational success.

**Assessment:**

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<tbody>
<tr>
<td><strong>Class presentation</strong> See below (40%)</td>
<td>O1 – O4</td>
</tr>
<tr>
<td>Prepare and execute a detailed presentation about how to promote equity, cultural diversity and social justice in two educational setting: (1) your home county (2) a disadvantaged county.</td>
<td></td>
</tr>
<tr>
<td><strong>Final paper</strong> of not more than 4,000 words (60%)</td>
<td>O1 – O4</td>
</tr>
<tr>
<td>Write and defend a paper grounded in one or more theoretical perspectives on equity and social justice that addresses one of the United Nations Sustainable Development goals in a practical way</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** A student must pass both assessments in order to pass the course.

The detailed class presentation is an integral part of a group presentation and must be aligned and integrated with the group’s topic and the presentations of other members of the group.

Each member of the group will make the presentation in a defined manner according to a plan provided to the course lecturer in the form of a powerpoint. One group will present each week. Each group presentation is limited to 30. This will be followed by 20 minutes of interrogation by a panel of 6 students.

*(Version as at July 8, 2019)*
Teacher(s):
Dr Ida A C Ida Mok (coordinator), Professor Frederick K S Leung, Dr Valerie W Y Yip

Course objectives:
1. critically evaluate methodological issues in science, mathematics and computing studies;
2. reflect on the progress of their own studies; and
3. apply skills and knowledge learned from this course to refine the design of their own studies.

Minimum requirement for attendance:
Nil

Pre-requisite:
Nil

Course structure:
The module is based on 8 sessions of 3 hours duration each. Lectures / discussion / individual and group presentations will be organized in the sessions.

Key readings:
Outcome:
1) critically evaluate methodological issues in science, mathematics and computing studies;
2) reflect on the progress of their own studies; and
3) apply skills and knowledge learned from this course to refine the design of their own studies.

Assessment:

Continuous Assessment
Develop a reflective journal of your learning at different stages of the course. The portfolio will consist of:

<table>
<thead>
<tr>
<th>Items in the portfolio</th>
<th>Learning outcomes</th>
</tr>
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<tbody>
<tr>
<td>(1) One or two pieces of reflection (total number of words: ~ 1000) on the methodological issues of either the categories of research or projects discussed in the course. (30%)</td>
<td>1. critically evaluate methodological issues in science, mathematics and computing studies;</td>
</tr>
<tr>
<td>(2) Prepare a conference presentation that may relate to their theses, but are not clearly part of their theses. Write up the conference paper. (About 3000 words, 70%)</td>
<td>2. reflect on the progress of their own studies; and 3. apply skills and knowledge learned from this course to refine the design of their own studies.</td>
</tr>
</tbody>
</table>

Note: Students have to pass both assessments in order to pass the course.

(Version as at July 8, 2019)
Teacher(s):
Dr Xiao Hu

Course objectives:
There are rich texts in educational contexts, such as student writings, forum posts, peer comments, classroom discourse, etc. With the amount of the texts grows larger, especially in today’s various digital and online platforms, researchers in education have recognized the power of text analytics and started adopting it as a main or complementary method. The main goal of this course is to increase student awareness of the power of analytical and computational methods in finding patterns in text collections, and to equip them with these methods in analyzing various texts related to their research interests. This course is designed as a general introductory level course for all students who are interested in analyzing text using automated means. Programming skill is NOT required in this class.

The course will introduce the concepts and methods of text analytic technologies which lie in the intersection of multiple research areas, including machine learning, natural language processing, information retrieval, and statistics. Existing tools for text analytics and visualization will be introduced in the context of educational applications such as topic modeling, sentiment analysis, automated assessment, etc. With both conceptual discussions and hands-on exercises, this course will facilitate students exploring how to apply text analytics to their research.

Minimum requirement for attendance:
Nil

Pre-requisite:
Nil

Course structure:
The course consists of lectures, in-class discussions on cases, in-class demonstrations, take-home labs, and a research proposal using text analytics. There will be 12 contact hours in 6 meetings, which will cover the following topics:

1. Overview of text analytics and natural language processing, lexical processing
2. Text representation (how to convert raw text into numbers)
3. Text categorization and applications (e.g., sentiment analysis)
4. Text clustering (finding topics in large amount of text)
5. Feature ranking and topic modeling (finding discriminant words)
6. Conducting text analytic projects (proposal presentation and commenting)

Key readings


**Outcome:**
Upon completing this course, students shall be able to

1) Describe basic concepts and methods in text analytics, such as lexical analysis, text representation, text categorization and clustering, and topic modeling;
2) Articulate the mechanisms in text analytical applications in educational contexts, such as sentiment analysis, automated writing assessment, and topic identification;
3) Use text analytic tools to explore interesting patterns in a collection of texts;
4) Select appropriate technologies for specific text analytic tasks and evaluate the benefits and challenges in the selected solutions.

**Assessment:**

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<tr>
<td>Labs (20%)</td>
<td>O1, O3</td>
</tr>
<tr>
<td>Case presentation and analytic review (20%)</td>
<td>O2</td>
</tr>
<tr>
<td>Research proposal (40%)</td>
<td>O3, O4</td>
</tr>
<tr>
<td>In-class and online activities (20%)</td>
<td>O1, O2, O3</td>
</tr>
</tbody>
</table>

Students do not need to pass all assessments to pass the course. The passing grade is 60%
All assessment tasks are individual-based.
The length of written assignment should normally be not more than 4000 words.
Presentations are limited to 3 minutes each.
The labs are exercises corresponding to the topic of each week: students answer the given questions using a tool taught in class.

More details on the assessment tasks:

1) **Labs (20%)**
There is a lab each week for most of the weeks, for exercising what we learn in the lecture, and for building up hands-on skills for your research. The deliverable of each lab is a post on the Lab forum on Moodle, and comments to peer students’ posts. In-time posts count for full scores, late posts count for half scores, and no submission get no score. The posts are due before the next class.
2) **Case presentation and analytic review (20%)**
Starting from Week 2, in each week, one paper on text analytics in education will be assigned as a case for analysis. Each student will select one topic/paper to conduct the analysis. During the corresponding week’s class, the student will:

1) Present critical thinking on the paper in class and facilitate in-class discussion. Critical thinking includes: your judgments on the pros and cons of the study presented in the paper; your questions on any aspects of paper; questions stimulating discussions. (5%) Each presentation is up to 3 minutes (note: no need to repeat what the paper did as everyone should have read the paper. Please focus on your critical appraisal and opinions).

2) Post a short thread on the “Case Analysis” Moodle forum. The post should be an analytic review of this paper, with critical views on the pros and cons, as well as your opinions and questions. The student should also facilitate discussion in his/her thread on the Moodle forum. The post is due by the second day of the presentation. This part is 15% of final score. Assessment criteria include clear writing, critical analysis, reasonable arguments, and timeliness.

All students need to 1) read the paper before class, 2) participate in discussions in class or on Moodle forum (Moodle discussions are due before next class). Participation counts towards “in-class and online activities” score.

3) **Project proposal (40%)**
This assessment task aims to train students to flexibly apply methods learned in this course to research problems they are interested in. A secondary goal is to enhance their ability in proposal writing.

Assessment includes:

1) **Project proposal: [30 points]**
   Each proposal should contain the following parts:
   - **Description of the research problem (10 points)**
     - Describe what the problem is and why it is significant or interesting (hint: importance is usually supported by a review of the literature);
     - Describe the text data the problem may involve;
   - **Identify text analytic methods proposed to solve the problem: (10 points)**
     - State the text analytic methods selected and explain why they are chosen for this research problem (note: text analytics are often used together with other methods).
     - Describe how the methods can be implemented (e.g., plans, tools, etc.)
   - **Expected results and reflections: (10 points)**
     - Present the expected results of the research design (e.g. hypotheses).
     - Reflect on the proposal (e.g., are there any limitations? good ideas without existing tools, etc.)

   Each student should submit the project proposal to Turnitin Assignment on Moodle. No hard copy is needed.

2) **Proposal presentation: [10 points]**
   In the last class, each student has 3 mins to present the project proposal (also as a good practice opportunity for the “3 Minute Thesis” (3MT) competition).
This is for each student to get feedback from the instructor and other students. The presentation needs to cover the following:

- Description of research problem and why it is significant/interesting
- Research design
- Expectations of results
- Reflection

The presentations should be correct, clear, with proper visual aids, and with good timing.

4) **In-class / online Activities (20%)**

Active participation in class, including answering, raising questions, and contributing in discussions during classes. There are online activities on Moodle including “Getting to know each other”, short questions, discussion forums (including case analysis forum). Please seize the opportunity and exercise!

*(Version as at July 8, 2019)*
Teacher(s):
Dr Frank Reichert

Course objectives:
This course will focus on exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) as tools for examining the dimensionality of constructs and scale building. Students will learn about: 1) the conceptual foundations, assumptions, and requirements of factor analysis; 2) the aims of and the differences between EFA and CFA; 3) the procedures of performing the data analysis using standard statistical packages (e.g., SPSS, AMOS, Mplus, R); and 4) proper interpretations and reporting of the statistical results.

Minimum requirement for attendance:
Nil

Pre-requisite:
- Basic knowledge of regression analysis/
- EDUR7056 Regression (Part A)/
- EEDD6701 Research Methods I/
- EDUR6021 Quantitative Research Methods II/
- GRSC6007 Applied Quantitative Research Methods

Course structure:
Each meeting will introduce one kind of factor analysis model, its theoretical foundation and worked out examples. Students will have the opportunity to implement these procedures in SPSS/Amos, Mplus and/or R.

1. Meeting 1 will introduce the concepts used in factor analysis (e.g., manifest and latent variables, formative and reflective measurement). The main focus of this meeting will be on exploratory factor analysis (EFA) and scale building.
2. Meeting 2 will introduce confirmatory factor analysis (CFA) and explain how it is different from exploratory factor analysis. In this session, students will learn how to conduct a CFA and to assess the reliability and validity of latent constructs.
3. Meeting 3 will make students aware of more advanced CFA models, such as higher-order factor models and bifactor models. Students will also learn how to modify CFA models to reach parsimonious and well-fitting models.
4. Meeting 4 will introduce measurement invariance testing with multiple groups (e.g., boys vs. girl). Common problems and pitfalls in factor analysis and possible solutions will also be discussed.

Key readings:
**Outcome:**

1) Understand the concepts and principles of factor analysis
2) Recognize the use of appropriate factor analytical models and procedures and understand the methodological issues in factor analysis
3) Develop skills in conducting different factor analysis models in a software package
4) Develop skills in interpreting and communicating results of the analysis

**Assessment:**

<table>
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<tr>
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<tbody>
<tr>
<td>Students will have to complete two homework assignments for the materials covered in the four meetings. An assignment will be given after the second and after the fourth meeting and will be due two weeks after. The homework assignments will consist of problems pertaining to computation, computer implementation, and interpretation of results. Each homework assignment will be worth 30% of the final score.</td>
<td>O1 – O4</td>
</tr>
<tr>
<td>During the week after each meeting, students will have to read one short empirical article reporting an application of the factor analysis method discussed in the respective meeting and then submit short forum posts. Forum posts need to relate to methodological issues and can be, for instance, questions about the methods or analysis, methodological criticism and suggestions for improvement of the analysis, clarifications of the reported analysis, as well as responses to other students’ questions (e.g., corrections or answers to questions on the analysis). Each week these posts will be worth 10% of the final score; at least two posts are required each week and they will be assessed based on their quality and on the diversity over the entire semester (e.g., a student should not only post questions but also respond to questions).</td>
<td>O1, O2, O4</td>
</tr>
</tbody>
</table>

*Note: A final score of at least 80% is needed to pass the course.*

*(Version as at July 8, 2019)*
**Teacher(s):**
Dr Frank Reichert

**Course objectives:**
This course will focus on structural equation modeling as a tool for examining (causal) relations between (latent) variables. Students will: 1) gain the conceptual and statistical knowledge needed to understand and examine different structural equation models; 2) understand the assumptions, requirements and limitations of structural equation modeling; 3) learn the procedures of performing the data analysis using standard statistical packages (e.g., SPSS, AMOS, Mplus, R); and 4) learn to interpret and report the statistical results.

**Minimum requirement for attendance:**
Nil

**Pre-requisite**
- Basic knowledge of regression analysis
- Basic knowledge of factor analysis*/
- EEDD6701 Research Methods I/
- EDUR6021 Quantitative Research Methods II/
- GRSC6007 Applied Quantitative Research Methods/
- EDUR7103 Factor Analysis/ Structural Equation Modeling I: Factor Analysis

*Students should be encouraged to take EDUR7103, and students who have attended EDUR7103 are encouraged to enroll in EDUR7104. Students who have not attended EDUR7103 but enroll in EDUR7104 should review Ch. 14-15 in Keith (2015) prior to the second meeting.

**Course structure:**
Each meeting will introduce one kind of structural equation model (SEM), its theoretical foundation and worked out examples. Students will have the opportunity to implement these procedures in SPSS/Amos, Mplus and/or R.

1. Meeting 1 will introduce the foundations and concepts of SEM (e.g., manifest and latent variables, direct and indirect effects). Students will learn about path models with only manifest variables and about latent variable structural equation models.
2. Meeting 2 will cover interactions and multiple group SEM as well as mean structures.
3. Meeting 3 will introduce longitudinal SEM with a focus autoregressive and panel models, as well as latent state-trait models.
4. Meeting 4 will cover latent growth curve models to study individual change over time; the meeting will also provide a brief introduction to multilevel SEM. Advanced topics such as incomplete data, non-normal data, power as well as limitations and dangers of structural equation models will also be addressed.

**Key readings:**
**Outcome:**
1) Understand the concepts and principles of SEM
2) Recognize the use of appropriate SEMs and procedures and understand the methodological issues in SEM
3) Develop skills in conducting different SEM models in a software package
4) Develop skills in interpreting and communicating results of the analysis

**Assessment:**

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<tr>
<th>Assessment</th>
<th>Outcome(s) to be assessed</th>
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<td>Students will have to complete two homework assignments for the materials covered in the four meetings. An assignment will be given after the second and after the fourth meeting and will be due two weeks after. The homework assignments will consist of problems pertaining to computation, computer implementation, and interpretation of results. Each homework assignment will be worth 30% of the final score.</td>
<td>O1 – O4</td>
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<td>During the week after each meeting, students will have to read one short empirical article reporting an application of the SEM method discussed in the respective meeting and then submit short forum posts. Forum posts need to relate to methodological issues and can be, for instance, questions about the methods or analysis, methodological criticism and suggestions for improvement of the analysis, clarifications of the reported analysis, as well as responses to other students’ questions (e.g., corrections or answers to questions on the analysis). Each week these posts will be worth 10% of the final score; at least two posts are required each week and they will be assessed based on their quality and on the diversity over the entire semester (e.g., a student should not only post questions but also respond to questions).</td>
<td>O1, O2, O4</td>
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*Note: A final score of at least 80% is needed to pass the course.*

*(Version as at July 8, 2019)*