GEORGE MASON UNIVERSITY
COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT
SPECIAL EDUCATION PROGRAM

EDSE 616
Braille Reading & Writing
Spring 2010: January 28-May 6
Thursdays 7:20-10:00 PM

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COURSE DESCRIPTION (3:3:0): (Co/Pre-req: EDSE 511: Characteristics of Students with Visual Impairments & Pre-req: EDSE 512: Braille Code)
This course provides basic instruction on transcription of advanced braille codes, including: music, foreign language, chemistry, computer braille, and Nemeth Code (braille math code). Introduces techniques for teaching skills in each code. Explores technology tools used to create braille and tactile materials in addition to other assistive technologies used for instruction in math and science.

REQUIRED READINGS, REFERENCE AND MATERIALS
- Computer, access to the internet and corresponding technology
- **Software:** The following programs are available free of charge:
  - **Perky Duck:** http://www.duxburysystems.com/products.asp
    - This program will be used for practice and submitting assignments. You will need a keyboard that can handle six key simultaneous input.
  - **Nemeth Code Tutor:** http://www.tsbvi.edu/math/math-resources.htm#Download
    - This program provides instruction and computerized Nemeth practice with instant feedback.
- Slate and Stylus (from APH Student Starter Pack)
- Abacus (from APH Student Starter Pack)
- Braille paper, braille on labels, braille eraser
- Access to a brailler

Textbook:
Craig, R. H. (1987). *Learning the Nemeth braille code.* Louisville, KY: American Printing House for the Blind.

Texts Available Online:

Braille Authority of North America. (2002). *English braille American edition* (rev'd). http://www.brailleauthority.org/

Braille Authority of North America. (1997). *Music Braille code*. Louisville, KY: American Printing House for the Blind. Available at http://www.brl.org/music/index.html.

Braille Authority of North America. (1997). *Braille code for chemical notation*. Louisville, KY: American Printing House for the Blind. Available at http://www.brl.org/chemistry/.

Grading Scale

Grade	Points
A+	200
A	190-199
A-	180-189
B+	179
B	170-178
B-	160-169
C	140-159
F	<140

Point Distribution

Assignment	Points
Homework/transcription (10 @ 5 points each)	50
Weekly Participation (2 points/14 weeks)	28
Midterm	20
Tactile Graphic Project	15
K-3 book transcription	20
Literary lesson plans/teaching experience	20
Math/Nemeth lesson plan	15
Final	32
Total	200

Participation

Points	Criteria
2	Student completes in class practice braille exercises and participates in activities and discussions (verbally, in writing or online when appropriate or assigned). All communication is respectful and demonstrates progress toward professional development.

Attendance:

One excused absence will be permitted. Students may earn the 2 point participation points for the excused absence by submitting a 200 word essay of the class topic after viewing the recorded session online. Subsequent absences will not be afforded the participation make-up option. Significant late arrival or extremely early departure may result in loss of part or all of participation points.

Homework:
Homework assignments in this class will consist of braille transcription, proofreading practice, materials adaptation, written responses to essays, case studies, etc. Homework will be done with varying techniques depending on the assignment and may include braille submissions with Perky Duck, online discussions and typed documents. Weekly distribution of homework points will be provided with each assignment.

Late Homework Assignments:
All assignments are due before the next class begins. Late assignments will be docked .5 points for each day late, up to 3 days, after which the assignment will be unacceptable. Error deductions are still applicable.

Late Policy for Class Projects and Tests:
Projects and tests will receive a 10% deduction from the original points possible for each day it is late.

Proposed Class Schedule: Subject to change depending on class needs

Date	Topic	Practice Drills, Assignments and Reading
Jan. 28	• Syllabus review • Literary braille review and proofreading practice	Read syllabus Work on braille transcription and partner proofreading
Feb. 4	• Introduction to Nemeth Code • Nemeth numbers, basic indicators, signs of operation • Braille flashcards	**Download:** Nemeth Code Tutor **Reading assignment:** found on Bb **Due:** Assignment #1 and peer proofreading practice
Feb. 11	• Nemeth Code: Spatial arrangements, special signs • Tactile graphics overview	**Reading assignment:** found on Bb **Due:** Assignment #2

Feb. 18	• Nemeth Code: Advanced Nemeth transcription	**Reading assignment:** found on Bb **Due:** Assignment #3
Feb. 25	• Nemeth Code: Advance Nemeth transcription cont'd	**Reading assignment:** found on Bb **Due:** Assignment #4
March 4	• Abacus and adaptive math aids • Nemeth Code Midterm	**Reading assignment:** found on Bb **Due:** Assignment #5
March 11	Spring Break	
March 18	• Present tactile graphics project • Braille and foreign languages	**Reading assignment:** found on Bb **Due:** Assignment #6 **Due:** Tactile graphic project
March 28	• Chemical code • Braille and scientific materials • Formatting	**Reading assignment:** found on Bb **Due:** Assignment #7
April 1	• Computer Code	**Reading assignment:** found on Bb **Due:** Assignment #8 **Due:** K-3 book transcription due
April 8	• Braille Music Code	**Reading assignment:** found on Bb **Due:** Assignment #9
April 15	• Present lesson plans (literary and Nemeth) • Grade III braille	**Reading assignment:** found on Bb **Due:** Assignment #10 **Due:** Lesson plans
April 22	• Continue lesson plan presentations • Final Exam review	
April 29	Final Exam	**Due:** Final Exam
May 6	Go over final Course conclusion	

COURSE PROJECTS

Tactile Graphics Project
Students will select a map, graphic or game and make a tactile representation for a student who is blind or visually impaired. The item you choose must be adapted appropriately and include braille labels when necessary. Students may use technologies or appropriate materials to create this project. Symbols and a legend should be included when necessary.

A write-up (can be PowerPoint or word processed document) and presentation summarizing the use of adaptations and tactile elements used and instructional strategies must be submitted/provided to the class. Students who participate in this course through teleconferencing will need to take up-close digital photos of their project and submit to the instructor or use the in-class camera system to show the project.

Tactile Graphic Project Rubric

Criteria	Exemplary 5 points	Average 3-5 points	Unsatisfactory 0-2 points
Material selection	Student chose tactile materials that are optimal for graphic and provide ideal tactile definition for the user	Student chose tactile materials that are adequate for graphic and provide sufficient tactile definition for the user	Student chose tactile materials that are inappropriate for graphic and do not provide enough definition
Graphic adaptation	Tactile graphic is clean and organized; graphic was ideally adapted, spaced and arranged; braille labels are transcribed properly when necessary	Tactile graphic is adequately organized and relatively clean; adaptations, spacing and arrangement are adequate; braille labels are transcribed properly when necessary	Tactile graphic is sloppy or poorly organized; graphic adaptations, spacing and arrangement was inadequate or inappropriate; braille label transcription was omitted when necessary or contained errors
Teaching methods and write-up	Student provided optimal teaching strategies to use with a student who is b/vi, the write up/presentation details ideal teaching methods and optimal information on orienting a student to the graphic	Student provided adequate teaching strategies to use with a student who is b/vi; write up/presentation provides adequate teaching methods and information on orienting a student	Teaching strategies were inappropriate or inadequate for student who is b/vi; write up/presentation vaguely describes, omits or provides poor teaching methods and information on orienting a student to

		to the graphic	the graphic

Braille Literacy Lesson Plan and Teaching Experience
Students will create and teach a lesson to a student who is blind or visually impaired. Please inform the instructor in advance if you need assistance finding a volunteer student who is blind or visually impaired. Lessons can range from assessment procedures, building tactile awareness, pre-reading skills, introduction to braille, specific braille lessons and advanced codes. You may need to observe your student in advance and consult with teachers/parents/guardians in order to develop an appropriate lesson.

Students must report fieldwork to the instructor and their University Consortium faculty member before arranging/teaching a lesson.

Required Components:
- Summary of student information, current functioning abilities and literacy needs, cause of visual impairment, presence of multiple disability (if applicable) based on observations, consultation and data collection
- Lesson objectives, pre-requisites, lesson materials, any accommodations, procedure and evaluation method

Braille Reading Lesson Plan Rubric:

18-20 points	15-17 points	12-14 points	< 11 points
• Lesson was taught to a student who is blind or visually impaired • Lesson plan contains all required components. • Objectives in measurable terms. • The methodologies and materials used are appropriate to the objective(s). • The child with a visual impairment demonstrates learning. • The author evaluates his or her lesson plan realistically and	• Lesson was taught to a student who is blind or visually impaired • Lesson plan contains most required components. • Objectives are stated are not completely measurable. • The methodologies and materials seem unrelated to the stated objective(s). • Outcomes for the child with a visual impairment are ambiguous	• Lesson was taught to a student who is blind or visually impaired • Lesson plan is missing critical components. • Objectives are not measureable. • The methodologies and materials do not lead to child success. • Outcomes for the child with a visual impairment are ambiguous to poor.	• Lesson was not taught to a student who is blind or visually impaired • Lesson plan is missing critical components. • Objectives are not included in the lesson plan. • Methodologies and materials are incomplete or inappropriate to the (assumed) objectives. • Outcomes for the child with a visual impairment are poor and the

suggests revisions for the next lesson.	• The author does not recognize weaknesses in the methodology used or his/her reflection is cursory and without suggestions for improvement.	• The author does not critically assess the lesson's strengths and weaknesses.	objective(s) are not accomplished. • The author's assessment lacks self-analysis and revision.

Braille Math/Nemeth Lesson Plan

Students will create a math/Nemeth lesson plan for student who is blind or visually impaired. Lesson can range from number identification, Nemeth code instruction, to teaching a student how to arrange problems spatially with braille, abacus or math adaptive technology instruction, etc.

Students must report fieldwork to the instructor and their University Consortium faculty member before arranging/teaching a lesson.

Lesson Components:
- Brief description of the student who will benefit from this lesson or for those teaching this lesson to a student: summary of student information, current functioning abilities and braille math needs, cause of visual impairment, presence of multiple disabilities (if applicable) based on observations, consultation and data collection.
- Lesson objectives, pre-requisites, lesson materials, any accommodations, procedure and evaluation method

14-15 points	12-13 points	11-12 points	< 10 points
• Lesson plan contains all required components. • Objectives are stated in measurable terms. • The methodologies and materials used are appropriate to the objective(s). • Evaluation method is optimal. • The author evaluates his or her	• Lesson plan contains most required components. • Objectives are not completely measurable. • The methodologies and materials seem unrelated to the stated objective(s). • Outcomes or evaluation for the child with a visual impairment are	• Lesson plan is missing critical components. • Objectives are not measureable. • The methodologies and materials do not lead to child success. • Outcomes for the child with a visual impairment are ambiguous to poor. • The author does not critically assess the	• Lesson plan is missing critical components. • Objectives are not included in the lesson plan. • Methodologies and materials are incomplete or inappropriate to the (assumed) objectives. • Outcomes for the child with a

lesson plan realistically and suggests revisions for the next lesson.	ambiguous • The author does not recognize weaknesses in the methodology used or his/her reflection is cursory and without suggestions for improvement.	lesson's strengths and weaknesses.	visual impairment are poor and the objective(s) are not accomplished. • The author's assessment lacks self-analysis and revision.

K-3 Braille Book Transcription

Students will select a book for a student in Kindergarten to grade 3 and transcribe the text into contracted braille. Students must have a peer in the class proofread their book before submitting. Produce the braille book in Perky Duck and include a typed print copy of the book for the proofreader and instructor. After the Perky Duck file is scored by the proofreader and instructor, students can earn up to 5 points extra credit by brailing on sticky labels to stick on the book, or they may create their own separate version of the book on braille paper and include tactile graphics.
Books must be at least 30 words.

Up to 5 points will be given for accurately proofreading another student's transcription. Please use the braillist proofreaders form found on Blackboard to document errors and submit to the instructor.

14-15 points	12-13 points	10-11 points	<10 points
• Student chooses an appropriate grade-level book. • Transcription is sharp, good quality braille that does not interfere with print. • Tactile graphics, if used, are appropriate to the content and apply principles discussed in this course. • Braille text has 0-2 errors in	• Student chooses an appropriate grade level book. • Transcription is sharp, good quality braille. • Tactile graphics, if used, are not appropriate to the content or do not apply principles from class. • Braille text has 3-5 errors in transcription.	• Student chooses either an inappropriate grade level book. • The transcription quality is poor and difficult to read by touch, or the transcription obscures the print. • Tactile graphics are inappropriate to the content or meaningless to the child with a visual	• The book selected for transcription is inappropriate in content for grade level. • Transcription quality is poor. • Tactile graphics are unrelated to the principles discussed in this course. • Braille text has more than 8

transcription.		impairment. • Braille text has 6-8 errors in transcription.	errors in transcription.

TaskStream Submission:
Components of the Final Exam and course work will be submitted as the signature assignment on TaskStream. Final grades cannot be submitted until the TaskStream requirement has been fulfilled.

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT STATEMENT OF EXPECTATIONS:
All students must abide by the following:
- Students are expected to exhibit professional behavior and dispositions. See http://www.gse.gmu.edu for a listing of these dispositions.
- Students must follow the guidelines of the University Honor Code. See http://www.gmu.edu/catalog/apolicies/#TOC_H12 for the full honor code.
- Students must agree to abide by the university policy for Responsible Use of Computing. See http://mail.gmu.edu and click on Responsible Use of Computing at the bottom of the screen.
- Students with disabilities who seek accommodations in a course must be registered with the GMU Disability Resource Center (DRC) and inform the instructor, in writing, at the beginning of the semester. See www.gmu.edu/student/drc or call 703.993.2474 to access the DRC.

Keep Products from This Course for Future Use in Your Professional Portfolio!
Retain electronic copies of all course products to document their progress through the GSE Special Education program. Products from this class can become part of your individual professional portfolio used in your portfolio classes that document your satisfactory progress through the GSE program and the CEC performance based standards. As the program moves towards electronic portfolios, it will be even more important to have artifacts (i.e., scored assignments) saved electronically.

Accommodations:
Students with disabilities who seek accommodations in a course must be registered with the GMU Office of Disability Services or participating consortium university accommodations office and inform the instructor, in writing, at the beginning of the semester. See http://ods.gmu.edu/ or call 703.993.2474.
George Mason University Email: http://mail.gmu.edu/
From this link, follow the directions for activating an email account. Every student is required to establish a GMU email account. Course email correspondence and other important university emails will be sent to GMU email accounts.

George Mason Blackboard: http://Blackboard.gmu.edu GSE Blackboard will be used to post important information for this course (and others) and in completing some course assignments. Materials, resources, dialogues, notes, and other types of information will be housed on this course's Blackboard web site.

George Mason Patriot Web: https://patriotweb.gmu.edu/
This is a self-service website for students, faculty, and staff of George Mason University. There is a wealth of useful links, information, and online forms on this website including program of studies details, application for graduation, request for transfer of credit, and internship application.

Recommended Websites to Explore:
NOTE: Internet and web resources are not the same as peer-reviewed professional journal articles. Web sites will be posted on the course Bb that contain information that your Instructor recommends out of the millions of websites on reading on the internet! Be sure that you distinguish, however, between peer-reviewed professional journals and web resources. More about this distinction (as well as distinguishing professional journals from magazines) will be discussed in class.

Cell Phones
All cell phones and beepers should be silenced during class.

Weapons
All universities participating in the consortium prohibit the possession firearms, weapons or explosives. Please consult the student handbook and your university for specific information concerning this policy at your location.

Writing Resources and Support:
One type of writing support during this course is your use of relevant parts of the APA manual. As you're completing writing assignments, you may find it helpful to review parts of the APA manual, such as: For example:
- Chapter 2 on writing style (2.01 to 2.05)
- Chapter 2 on grammar (2.06 to 2.12)
- Chapter 2 on guidelines to reduce bias in language (focus on 2.16)
- Chapter 3 on punctuation, spelling, capitalization, italics, or abbreviations (3.01 to 3.29)
- Chapter 3 on quotations (3.34 to 3.41) Paraphrase, please (refer to other information on plagiarism in the APA manual as well as other resources and notes in this syllabus)
- Chapter 3 on reference citations in text (3.94 to 3.103)
- Chapter 4 on Reference list (4.01 to 4.16)

APA Formatting Guidelines are also available at
http://www.psywww.com/resource/apacrib.htm
This website is offered as a companion to the APA style manual. *However, it should not be considered a substitute for directly consulting the APA manual, 5th edition for standard of procedures for applying APA style.* Additional APA help URLs are available on the GSE library URL and may be available on the course Blackboard site. Caution with using web sites or resources other than the APA manual because some may have erroneous information on them.

NATURE OF COURSE DELIVERY:
Learning activities in this class will include the following:
1. Class lecture, discussion, and participation via synchronous face to face, web-conferences or videoconferences
2. Video and other relevant interactive media presentations
3. Application activities, including regular assignments
4. Written responses to posted discussion questions posted on Blackboard..
5. In-depth study and work on course requirements require outside class time.

LEARNER OUTCOMES:
This course is designed to enable students to:
- demonstrate basic understanding of reading and writing contracted braille using the following braille codes:
  a. Nemeth Code
  b. Braille Code for Chemical Notation
  c. Computer Braille Code
  d. Foreign Language
  e. Phonetics and Diacritical Markings
  f. Music Braille Code
- demonstrate knowledge of materials and instructional strategies for teaching mathematics and science to students with visual disabilities using the following devices:
  a. abacus
  b. talking calculator
  c. computer technology
  d. adapted science equipment
- demonstrate knowledge of basic guidelines for production of tactile graphics including:
  a. production methods
  b. tools and equipment
  c. Strategies for teaching the reading of tactile graphics to students.

PROFESSIONAL STANDARDS:

Course's Relationship to Program Goals and Professional Organization
This course is part of the George Mason University, Graduate School of Education (GSE), Special Education Program. This program complies with the standards for special educators established by the Council for Exceptional Children (CEC), the major special education professional organization.

The CEC Standards are listed on the following web site: http://www.cec.sped.org . Look in the second column on the left, and click on "Professional Standards." On this page, to the right, there is a red book pdf document titled "What Every Special Educator Must Know." The CEC Standards are located in this document. The primary CEC standard that will be addressed in this class will be:

Special Education Content Standard #4:   Instructional Strategies

Special educators posses a repertoire of evidence-based **instructional strategies to individualize instruction** for individuals with ELN. Special educators select, adapt, and use these instructional strategies to promote **positive learning results in general and special curricula**[3/] and to appropriately **modify learning environments** for individuals with ELN. They enhance the **learning of critical thinking, problem solving, and performance skills** of individuals with ELN, and increase their self-awareness, self-management, self-control, self-reliance, and self-esteem. Moreover, special educators emphasize the **development, maintenance, and generalization** of knowledge and skills across environments, settings, and the lifespan.

Beginning special educators demonstrate their mastery this standard through the mastery of the CEC Common Core Knowledge and Skills, as well as through the appropriate CEC Specialty Area(s) Knowledge and Skills for which the program is preparing candidates.

CEC Performance-Based Standard #4 for Visual Impairment:

VI4K1 *Knowledge:* Strategies for teaching braille reading and writing.

VI4K6 *Knowledge:* Strategies for teaching technology skills to individuals with visual impairments.

VI4S2 *Skills:*   Prepare adapted or modified materials in braille . . . .

VI4S3 *Skills*   Transcribe, proofread, and interline materials in braille . . . .

VI4S4 *Skills*   Use braillewriter, slate and stylus, and computer technology to produce braille materials.

VI4S5 *Skills*   Prepare individuals with visual impairments to access information and services from the community.

VI4K7 *Skills:*   Strategies for teaching use of the abacus, talking calculator, tactile graphics, and adapted science equipment.

SUGGESTED READINGS & RESOURCES

Braille Authority of North America. (2000). *Code for computer braille notation.* Louisville, KY: American Printing House for the Blind.

Colorado Department of Education. (1996). *Guidelines for literacy mode selection* (rev'd.). See http://www.cde.state.co.us/cdesped/SD-BLV.asp.

D'Andrea, F. M. (1997). Teaching braille to students with special needs. In D. P. Wormsley & F. M. D'Andrea (Eds.) *Instructional strategies for Braille literacy* (pp.145-188). New York: AFB Press.

Harley, R. K., Truan, M. B., & Sanford, L. D. (1987). Instructional materials and games. In R. K. Harley, M. B. Truan, & L. D. Sanford (Eds.), *Communication skills for visually impaired learners* (pp. 263-276). Springfield, IL: Charles C. Thomas.

Holbrook, M. C., & Koenig, A. J. (1992). Teaching braille reading to students with low vision. *Journal of Visual Impairment and Blindness, 86,* 44

Mangold, S. S. (1981). Adding spice to a braille reading program with activities and games. In M. R. Olson, *Guidelines and games for teaching efficient braille reading* (pp. 73-97). New York: American Foundation for the Blind.

Rex, E. J., Koenig, A. J., Wormsley, D. P., & Baker, R. L. (1994). *Foundations of braille literacy.* New York: AFB Press.

Torrence, G. (1990). *Alternative tactual codes: Braille and communications.* Austin, TX: Texas School for the Blind and Visually Impaired.

Wormsley, D. P., & D'Andrea, F. M. (Eds.). (1997). *Instructional strategies for braille literacy.* New York: AFB Press.

Chen, D., & Downing, J. E. (2006). Tactile strategies for children who have visual impairments and multiple disabilities: Promoting communication and learning skills. New York: AFB Press.

Cooper, H. L., & Nichols, S. K. (2007). Technology and early braille literacy: Using the Mountbatten Pro Brailler in primary-grade classrooms. *Journal of Visual Impairment & Blindness, 101*, 22-31.

DeMario, N. C., & Lian, M-G. J. (2000). Teachers' perceptions of need for and competency in transcribing braille materials in the Nemeth code. *Journal of Visual Impairment & Blindness, 94*, 7-14.

Edman, P. (1992). *Tactile graphics.* New York: AFB Press.

Harley, R. K., Truan, M. B., & Sanford, L. D. (1987). Behavioral objectives of the Braille code. In R. K. Harley, M. B. Truan, & L. D. Sanford (Eds.), *Communication skills for visually impaired learners* (pp. 294-297). Springfield, IL: Charles C. Thomas.

Harley, R. K., Truan, M. B., & Sanford, L. D. (1987). Instructional materials and games. In R. K. Harley, M. B. Truan, & L. D. Sanford (Eds.), *Communication skills for visually impaired learners* (pp. 263-276). Springfield, IL: Charles C. Thomas.

Harley, R. K., Truan, M. B., & Sanford, L. D. (1987). Mechanics of braille reading. In R. K. Harley, M. B. Truan, & L. D. Sanford (Eds.), *Communication skills for visually impaired learners* (pp. 306-311). Springfield, IL: Charles C. Thomas.

Holbrook, M. C., Wadsworth, A., & Bartlett, M. (2003). Teachers' perceptions of using the Mountbatten Brailler with young children. *Journal of Visual Impairment & Blindness, 97*, 1-15.

Hoz, R., & Alon, A. (2001). The tactics and knowledge representations used by blind students in learning from texts. *Journal of Visual Impairment & Blindness, 95*, 304-307.

Kapperman, G., & Sticken, J. (2002). A software tutorial for learning the Nemeth code for braille mathematics. *Journal of Visual Impairment & Blindness, 96*, 855-857.

Kapperman, G., & Sticken, J. (2003). A case for increased training in the Nemeth code of braille mathematics for teachers of students who are visually impaired. *Journal of Visual Impairment & Blindness, 97*, 110-112.

Kapperman, G., & Sticken, J. (2003). Using the Braille Lite to produce mathematical expressions in print. *Journal of Visual Impairment & Blindness, 97*, 1-6.

Kapperman, G., & Sticken, J. (2003). Using the Braille Lite to study foreign languages. *Journal of Visual Impairment & Blindness, 97*, 1-13.

Koenig, A. J. (1992). A framework for understanding the literacy of individuals with visual impairments. *Journal of Visual Impairment and Blindness, 86,* 277-284.

Koenig, A. J., & Ashcroft, S. C. (1993). An analysis of errors in braille writing samples. *Journal of Visual Impairment and Blindness, 87,* 12-18.

Krufka, S. E., & Barner, K. E. (2006). A user study on tactile graphic generation methods. *Behaviour & Information Technology, 25*, 297-311.

Kusajima, T. (1974). Visual reading and braille reading: An experimental investigation of the physiology and psychology of visual and tactual reading. New York: American Foundation for the Blind.

Leigh, S. A., & Barclay, L. A. (2000). High school braille readers: Achieving academic success. *RE:view, 32*(3), 23-31.

Olson, M. (1981). Diagnostic assessment of braille reading skills. In M. Olson, *Guidelines and games for teaching efficient Braille reading* (pp. 100-105). New York: American Foundation for the Blind.

Olson, M. (1981). Pre-school experiences important to braille reading readiness. In M. Olson, *Guidelines and games for teaching efficient Braille reading* (pp. 19-34). New York: American Foundation for the Blind.

Papadopoulos, K. (2005). Automatic transcription of tactile maps. *Journal of Visual Impairment & Blindness, 99*, 242-246.

Rodenburg, L. W. (1977). *Key to grade three braille.* Louisville, KY: American Printing House for the Blind.

Rosenblum, L. P., & Amato, S. (2004). Preparation in and use of the Nemeth braille code for mathematics by teachers of students with visual impairments. *Journal of Visual Impairment & Blindness, 98*, 484-498.

Siligo, W. R. (2005). Enriching the ensemble experience for students with visual impairments. *Music Educators Journal, 91*(5), 31.

Swenson, A. M. (1991). A process approach to teaching Braille writing at the primary level. *Journal of Visual Impairment and Blindness, 85,* 217-221.

Wormsley, D. P. (1997). Fostering emergent literacy. In D. P. Wormsley & F. M. D'Andrea (Eds*.) Instructional strategies for Braille literacy (*pp.17-56). New York: AFB Press.

Additional readings and handouts will be posted on the course site to support activities and discussion topics.