Leveraging Rich Medical Student Curriculum Content to Enhance Introductory Pathology Resident Onboarding Instruction

Maedeh Mohebnasab, M.D., Deepak Donthi, M.D., Dustin Spirgen, M.D., Wen Zhong, M.D.,

Iana Lesnikova, M.D., Ann T. Sutton, M.D., Philip J. Boyer, M.D., Ph.D.

Department of Pathology and Laboratory Medicine, Brody School of Medicine, East Carolina University and Vidant Medical Center, Greenville, NC

Maedeh Mohebnasab, M.D.
Department of Pathology & Laboratory Medicine
Brody School of Medicine
East Carolina University
Greenville, North Carolina 27858
mohebnasabm17@ecu.edu

Rationale/Need

- Incoming first year residents in the Department of Pathology and Laboratory Medicine at East Carolina University are provided with a month of instruction, or "onboarding," including both (1) knowledge-based instruction and review including sessions regarding embryology, anatomy, and histology of each organ system and (2) skill set instruction and practice including basic grossing of organs, dictation, frozen sectioning, microscopy, and histotechnology.
- The introduction of this onboarding experience exposed a critical need for a defined, polished curriculum to serve as an instructional infrastructure.
- The Accreditation Council for Graduate Medical Education (ACGME) has promulgated guidelines for the Milestones Project in residencies which set expectations of achievement by residents with respect to level of training, levels 1-5, novice to advanced, prior to their completion of training.
  - The anatomic pathology and clinical pathology guidelines incudes 27 standardized milestones
  - Data documenting the progression of the resident's knowledgebase and skills is essential to the process
- Knowledgebase-related learning opportunities and resources optimally include specific curriculum content including (1) learning objectives and (2) means of assessment, e.g. a pretest and a posttest, to document the resident's progress.

Methods / Description

- A resident curriculum course was established in Blackboard
- An organ system-based framework was established and populated with:
  - Embryology, Anatomy, and normal histology content presented during the past two years to incoming residents
  - Pathology content compiled from existing medical student teaching materials developed for the Pathology course in the Brody School of Medicine
- To-Do List: A list of things to add to the Pathology Curriculum project was compiled
- Data
  - An informal survey of current residents was undertaken with respect to the trajectory of the project and feedback was gathered
  - The incoming first year resident cohort will be formally surveyed using a survey tool (Qualtrics or Survey Monkey) regarding the construct of the project and ways to improve it.

Results

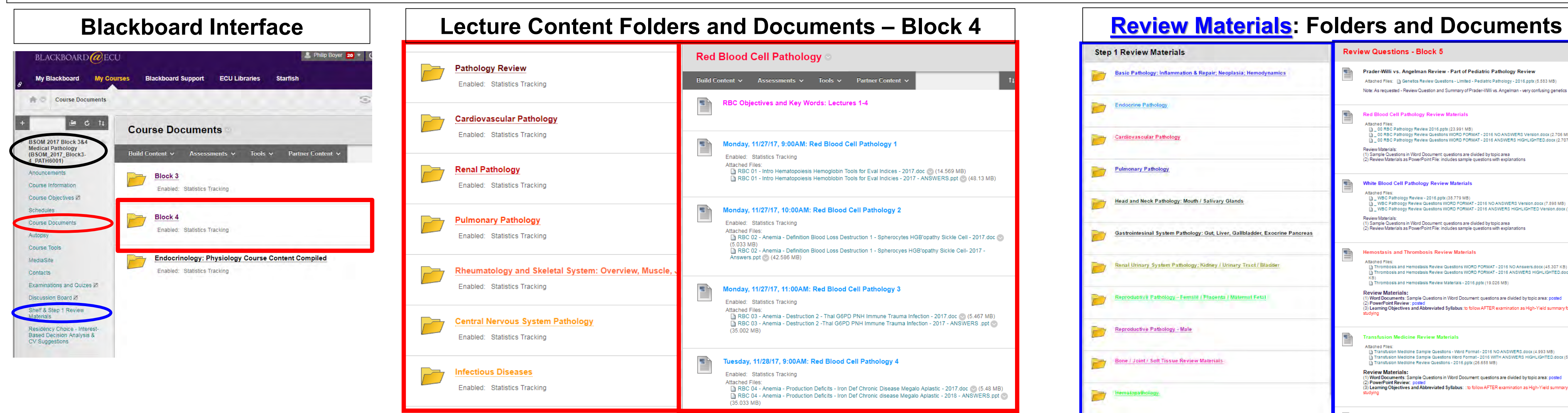### Figure 1. Existing Medical Student Course Lecture and Review Materials in Blackboard: Organized by Organ System

Figure 2. Examples of Content Available in Blackboard as Part of Medical Student Course: Not Otherwise Disseminated to Residents

Figure 3. Medical Student Course Blackboard Testing Center: Example of Available Questions: Will Be Repurposed for Quizzes and Examinations in Resident Curriculum → Auto-Grading and Grade Center Available
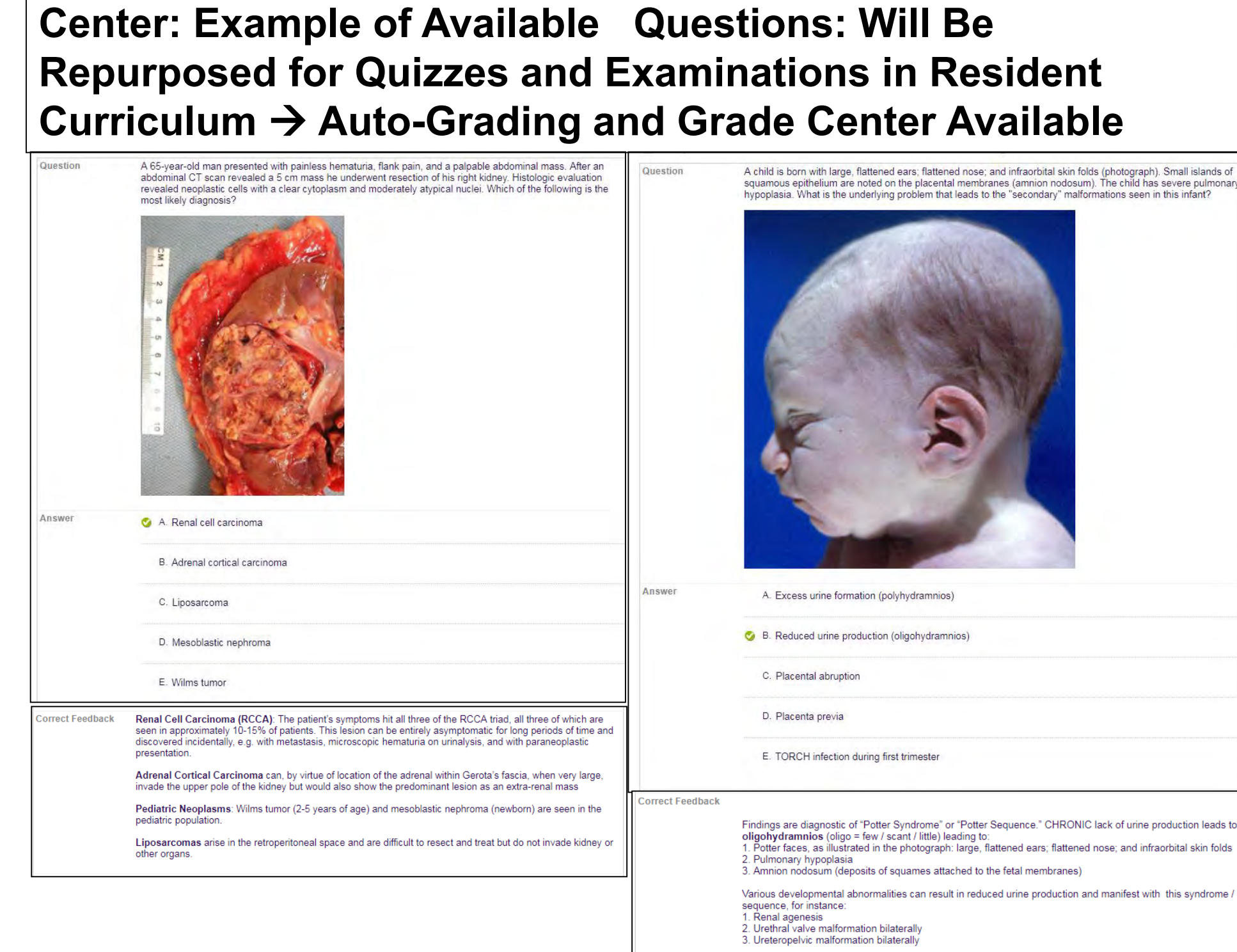

Figure 4. Resident Curriculum Blackboard Course: Configuration of Documents in General and Organ-Specific Folders
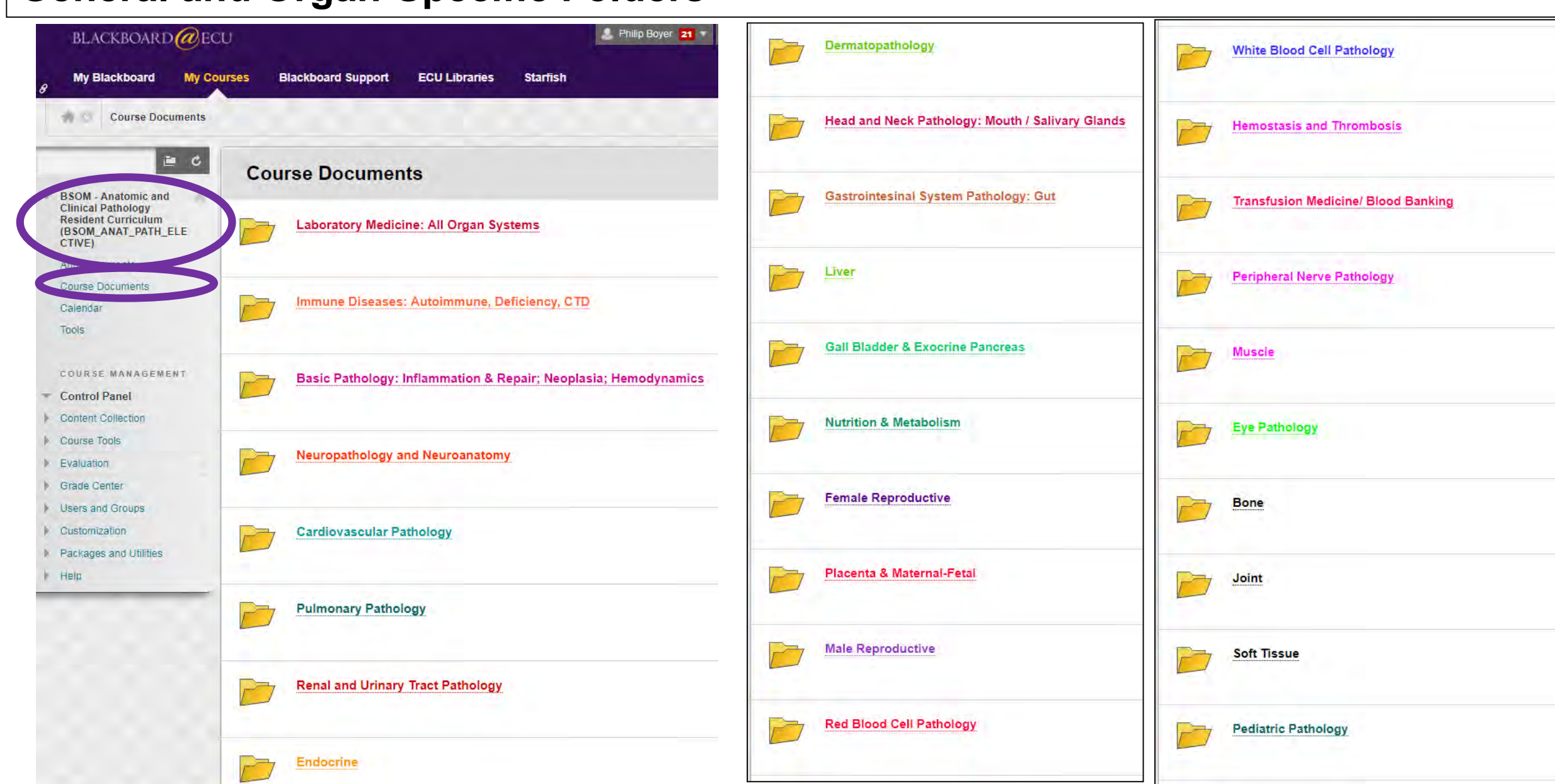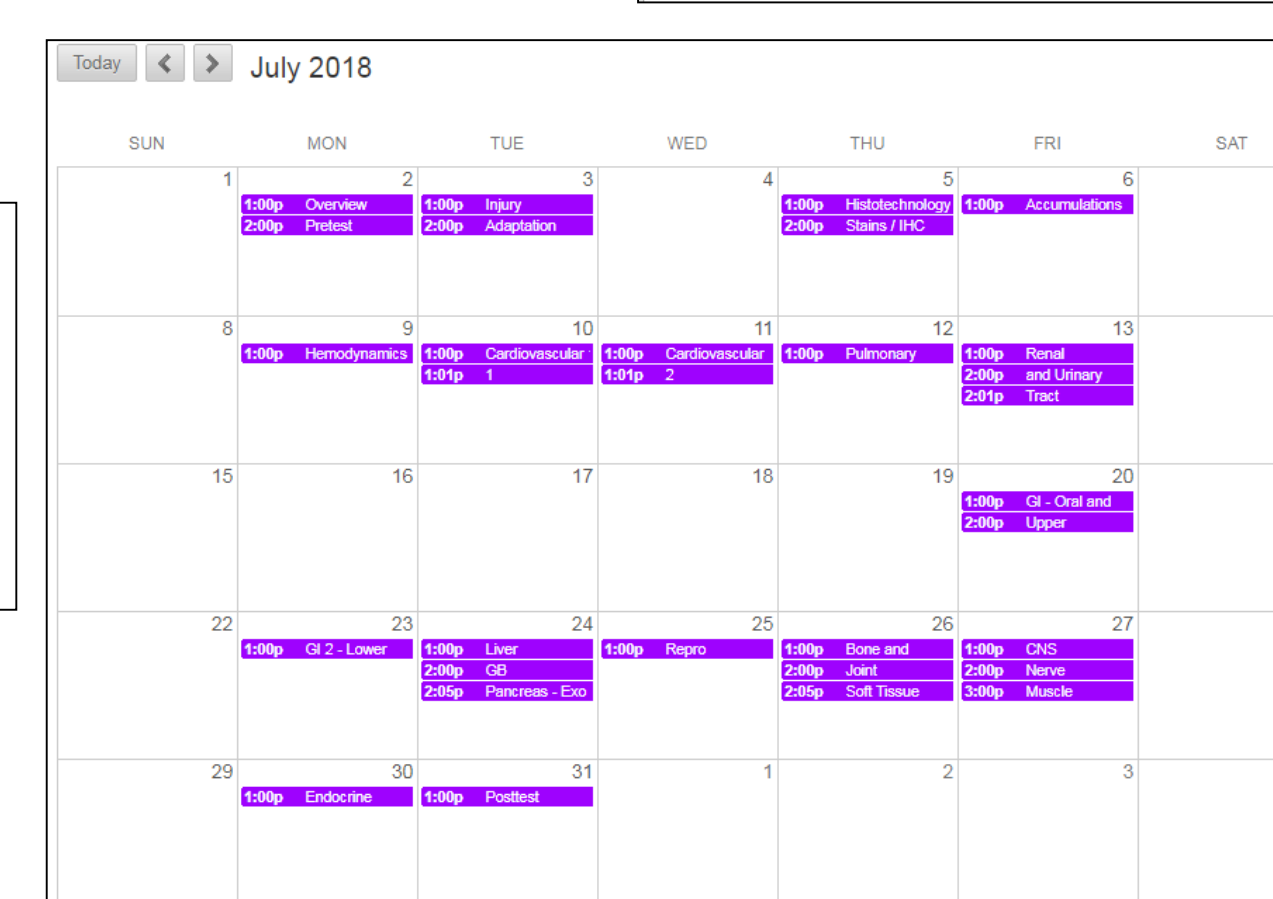

Figure 5. Resident Curriculum Blackboard Course: Calendar with Schedule of Dr. Boyer's Lectures to Residents During "Onboarding" Month

Preliminary Conclusions

- The Pathology Curriculum Project provides an instructional infrastructure for (1) an intensive month of onboarding instruction and experience and (2) a rich teaching resource during residency.
- This project takes advantage of the existing, extensive set of teaching materials used as part of the medical student Pathology course and leverages it to provide content for a pathology curriculum.
- Other materials used for onboarding can be added to this infrastructure.
- We can take advantage of tools available in the learning management system to meet documentation requirements of the ACGME:
  - Testing and quizzes tool
    - Automatically graded
  - Gradebook documentation
  - Objectives and key word repository and checklist
- Existing Blackboard licensing allows us to add residents as "Students" without any additional cost and then take advantage of existing content within a Blackboard "Course" without any additional cost.
- Alternatives to Blackboard exist (e.g. files in a file server) and have been used for resident education but lack the robustness of Blackboard
  - Web-based nature of Blackboard allows study activities to take place remotely.

To-Do List

- Prior to the arrival of first year residents in July of 2018, several additional enhancements will be accomplished.
- Assessment
  - Transform existing pretest and posttest questions and images into an online test within Blackboard
  - Transform existing test content from a database within the Brody School of Medicine testing software Exam Soft to another modality
    - Examsoft licenses are limited to medical students
    - Blackboard testing is a possibility
      - Blackboard size limitations for an examination or quiz make incorporation numerous images difficult
- The existing content will be supplemented with
  - Other onboarding and resident curriculum materials
  - Journal articles as PDFs derived from key journal articles and vetted by faculty members with expertise in the specific disease area
  - Links to digital whole slide images available internally and via the Internet with respect to:
    - Normal Histology
    - Major pathologic disease processes

References

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3. Naritoku WY et al. The pathology milestones and the next accreditation system. Arch Pathol Lab Med. 2014;138:307-315. doi:10.5858/arpa. 2013-0356-SA.