

## Case Western Reserve University – University Program Medical School

### Block 2: Action Plan 2020-2021

Year 1 (July – May)

<p><b>Becoming A Doctor</b></p> <p>Block 1 (5 Weeks)</p> <p>Population Health, Epidemiology, Biostatistics, Health Disparities</p> <p>Field Experiences Assessment Week</p>	<p>2 Weeks Steps2Success</p>	<p><b>The Human Blueprint</b></p> <p>Block 2 (11 Weeks)</p> <p>Endocrinology, Reproduction, Development, Genetics, Molecular Biology, Cancer Biology</p> <p><u>Integrative Week</u> Assessment Week</p>	<p><b>Food to Fuel</b></p> <p>Block 3 (9 Weeks)</p> <p>Gastroenterology, Nutrition, Biochemistry</p> <p>Assessment Week</p>	<p><b>Homeostasis</b></p> <p>Block 4 (14 Weeks)</p> <p>Cardiovascular, Pulmonary, Renal, Cell Physiology and Pharmacology</p> <p><u>Clinical Immersion Week</u> Assessment Week</p>
<p><b>Structure</b> (Anatomy, Radiology and Histopathology)</p> <p><u>Foundations of Clinical Medicine</u> (Tuesday Seminars, Communications, Physical Diagnosis, Patient Based Experiences)</p>				

- 1. Course Description:** [Extensively modified to reflect a stronger emphasis on integration, as illustrated in the Block overview slides (see also Appendix I).

Block 2 tells the story of cellular, tissue and organismal development and function in the context of the replication, transmission, and differential expression of the genome, the blueprint that specifies the characteristics of each individual human being. This block incorporates basic and clinical concepts from four medical disciplines (Genetics, Endocrinology, Reproduction and Cancer Biology) supported by foundational material encompassing three basic science disciplines (Molecular Biology, Cell Biology and Developmental Biology). The overarching goal of the block is to provide students with a conceptual framework for understanding the basic molecular, cellular and physiological mechanisms that underlie human health and disease. The seven different disciplines are integrated through three major themes that are interwoven throughout the Block: genetic changes (mutations) that lead to disease and their patterns of inheritance; the regulation of gene expression and signal transduction and the phenotypic consequences of dysregulation (failure to regulate properly) or mis-regulation (faulty regulation); and the normal development of a human being from an embryo to an infant together with the genetic and environmental factors that lead to abnormal development. The block incorporates concepts from Bioethics at multiple points including informed consent and patient autonomy.

**2. Block Leadership:**

- Leader: Jo Ann Wise, Ph.D. (Molecular Biology, CWRU)
- Co-leader Laure Sayyed Kassem, M.D. (Endocrinology, VA)
- Block manager: Nivo Hanson

**3. Other Design Team Members:**

- Ron Conlon, Ph.D. (Development; Genetics & Genome Sciences CWRU)
- George Dubyak, Ph.D. (Cell Biology; Physiology & Biophysics, CWRU)
- Sherif El-Nashar, M.D. (Reproductive Biology; University Hospitals)
- Jonatha Gott, Ph.D. (Molecular Biology, CWRU)
- Mark Jackson, Ph.D. (Cancer; Pathology, CWRU)\*
- Smitha Krishnamurthi, M.D. (Cancer Biology, CCLCM)
- James Liu, M.D. (Reproductive Biology; University Hospitals)
- Sam Mesiano (Reproductive Biology, University Hospitals)
- Marcia Michie, Ph.D. (Bioethics, CWRU)
- Aditi Parikh, M.D. (Genetics; University Hospitals)
- Jacob Scott , M.D./Ph.D. (Cancer, CCLCM)
- Shashirekha Shetty, Ph.D. (Genetics, University Hospitals)
- Jennifer Yoest, M.D. (Cancer; Pathology, University Hospitals)

A new co-leader replaced Joe Bokar and several new members joined the Design Team during the 2020-21 academic year including replacements for Joe; another member joined during the 2019-20 academic year.\*Indicates a member who recently resigned due to other commitments.

**4. Block Objectives:** Please fill in the table below for your Block Objectives. [Note that the overall goals of the block did not actually change but were extensively modified to be more comprehensive and emphasize the interrelationships among different disciplines; the table incorporates the new goals (see also Q 9. below and Appendix II).]

Competency and Definition	Educational Program Objective (EPO)	Block 2 Goals	Recommended Changes
<b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care	Demonstrates ability to apply knowledge base to clinical and research questions  Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician	Understand the basic mechanisms of DNA replication and transcription including the impact of chromatin structure and epigenetic marks as well as the roles of <i>cis</i> -acting signals and <i>trans</i> -acting factors	None

<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the mechanisms through which gene expression is regulated at multiple steps including transcription, RNA processing and translation and the impact of mutations that lead to disease as a result of dys- or mis-regulation</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the genetic basis and inheritance patterns (traditional and non-traditional) of diseases including congenital defects and cancer that result from mis-segregation of entire chromosomes, insertions or deletions of portions of chromosomes, and point mutations that affect single genes</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the technical and conceptual advances that led to the development of personalized medicine and describe how the results of genetic tests can be used to assess prognosis and treatment options for a growing number of diseases including congenital defects and cancer</p>	<p>None</p>

<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the principles and pathways of signal transduction and how disruption of intra- or intercellular communication leads to diseases including endocrine disorders and cancer</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the normal synthesis, targets, regulation and mechanisms of action of hormones and the molecular, cellular and tissue changes that accompany diseases that result from dysregulation of hormone production or targeting</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand the normal development of a human embryo and describe how it is altered in developmental disorders that result from mutations or environmental factors</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand human reproduction including male and female gametogenesis, neuroendocrine control of sexual development, hormonal control of pregnancy and parturition and methods of contraception</p>	<p>None</p>

<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand how DNA sequence alterations and epigenetic changes, defects in DNA repair pathways and dysregulation of signal transduction pathways lead to cancer, as well as the impact of cancer on public health</p>	<p>None</p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Understand cancer treatment options including surgery and radiation; cytotoxic chemotherapy; targeted therapies including those based on monoclonal antibodies and small molecules, as well as their modes of action</p>	<p>None</p>
<p><b>Common to all Blocks:</b></p>	<p><b>EPO</b></p>	<p><b>Block 2 Goals</b></p>	<p><b>Recommended Changes</b></p>
<p><b>Knowledge for Practice</b> Demonstrates knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences as well as the application of this knowledge to patient care</p>	<p>Demonstrates ability to apply knowledge base to clinical and research questions</p> <p>Demonstrates appropriate level of clinical and basic science knowledge to be an effective starting resident physician</p>	<p>Recognize and analyze ethical problems in clinical medicine and biomedical research using the principles of autonomy, beneficence, nonmaleficence and justice.</p>	<p>None</p>
<p><b>Teamwork &amp; Interprofessional Collaboration</b> Demonstrates knowledge and skills to promote effective teamwork and collaboration with health care professionals across a variety of settings</p>	<p>Performs effectively as a member of a team</p>	<p>Develop and practice the knowledge and skills that promote effective teamwork across a variety of settings.</p>	<p>None</p>

<p><b>Professionalism</b> Demonstrates commitment to high standards of ethical, respectful, compassionate, reliable and responsible behaviors in all settings, and recognizes and addresses lapses in behavior</p>	<p>Commonly demonstrates compassion, respect, honesty and ethical practices</p> <p>Meets obligations in a reliable and timely manner</p> <p>Recognizes and addresses lapses in behavior</p>	<p>Understand and practice the behaviors of an ethical, respectful, compassionate, reliable, and responsible physician.</p>	<p>None</p>
<p><b>Interpersonal &amp; Communication Skills</b> Demonstrates effective listening, written and oral communication skills with patients, peers, faculty and other health care professionals in the classroom, research and patient care settings</p>	<p>Uses effective written and oral communication in clinical, research, and classroom settings</p> <p>Demonstrates effective communication with patients using a patient-centered approach</p> <p>Effectively communicates knowledge as well as uncertainties</p>	<p>Understand and demonstrate effective communication skills for learning and clinical practice environments.</p>	<p>None</p>
<p><b>Research &amp; Scholarship</b> Demonstrates knowledge and skills required to interpret, critically evaluate, and conduct research</p>	<p>Analyzes and effectively critiques a broad range of research papers</p> <p>Demonstrates ability to generate a research hypothesis and formulate questions to test the hypothesis</p> <p>Demonstrates ability to initiate, complete and explain his/her research</p>	<p>Analyze, critique and present research studies from the primary literature.</p>	<p>None</p>

**5. In the grid below, please list the specific course changes you made this year based on last year's report.**

At the time that last year's report was written, we did not anticipate making significant changes to the curriculum. However, in response to the global pandemic and specific suggestions and feedback provided subsequently, Block 2 underwent substantive modifications. Anticipated changes are described first followed by unanticipated changes.

What changes were made in 2020-21?	How did the changes work?	What would you like to change next year 2021-22?
Moved the ½ hour cell cycle lecture, which previously took place on Day 1, to a later date, immediately preceding the Cancer section.	A longer lecture that integrated the concept of checkpoints with a related topic, apoptosis, was well received.	No further changes
Moved the "Medical Genetics and Genomics" lecture back to Week 1, where it had been prior to the advent of Anatomy Boot Camp	This change highlighted the importance of Inheritance as a key concept in Block 2.	No further changes
The plan to replace two of the Molecular Biology lectures with interactive sessions that utilize Poll Everywhere was abandoned	Poll Everywhere was not yet operational in the Zoom format during Block 2, which resulted in the Cancer Cell Biology lecture reverting to standard format	Interactive lectures will be developed or reinstated and lecturers in other disciplines will be encouraged to use Poll Everywhere
Recruited Dr. Shashiresha Shetty PhD, a clinical cytogenecist, to cover meiosis and mitosis from a more medically oriented perspective	Dr. Shetty received outstanding reviews from the students and also joined the Design Team, where she was an extremely valuable member	For the 2021-22 academic year, this lecture will be moved from Week 1 to Week 2 to improve coordination with the Down Syndrome IQ case
Moved the "Evolutionary Medicine" lecture, which had taken place on Day 1, to a later date to juxtapose the content with the Tay-Sachs IQ case, in which genetic bottlenecks is a key concept	Students showed a better understanding of population genetics during the TBLs	No further changes
Made minor change to one of the pedigrees in the TBL#2 application exercises to highlight consanguinity.	The modifications made the problem more straightforward for the students to solve and for the facilitators to explain.	Unanticipated changes to both TBLs were also introduced during the 2020-21 academic year, and additional changes are planned for 2021-22 as described in detail below

<p>A lecture on high throughput sequencing (HTS) was added and the lecture on molecular diagnostics was updated to expand the content related to HTS and other modern testing and screening tools</p>	<p>These changes worked well to highlight the “personalized medicine” theme that has been emphasized increasingly in Block 2, belatedly accommodating a suggestion made in the 2018 PEAC report</p>	<p>This lecture will be moved to a later date to juxtapose it with the cancer section, the disease in which HTS is most commonly used as a diagnostic tool</p>
<p>The plan to move an early Bioethics lectures on reproductive ethics to a later point in the block was not implemented</p>	<p>The rationale, that ethical decisions surrounding reproductive choices are discussed long before students have been exposed to the relevant basic science content, still holds</p>	<p>This plan will be implemented during the 2021-22 academic year</p>
<p>The Cancer TBL (#3) was eliminated but the plan to convert it to an interactive lecture was abandoned</p>	<p>In addition to recruiting new lecturers to replace Joe Bokar, the cancer curriculum was reorganized, and new content was added as described in detail below</p>	<p>Minor changes will be made in addition to the major changes made during the 2020-21 academic year</p>
<p><b>Unanticipated changes (some of which were necessitated by the pandemic, as indicated)</b></p>		
<p>The Block was transitioned to remote delivery because of Covid-19 pandemic; specific changes are described below</p>	<p>Benefitting from the lessons learned by staff and (to a lesser extent) faculty during Blocks 4 and 1, Block 2’s transition was remarkably smooth</p>	<p>Continue with remote delivery if necessary. Modifications will be made if returning to the HEC for in person delivery becomes possible</p>
<p>IQ Cases: In addition to transitioning all IQ cases to the Zoom platform, most cases underwent minor modifications to update resources</p>	<p>IQ continues to be a strength of Block 2 with 80% of students rating their effectiveness as “very good” or “excellent”</p>	<p>Continue remote delivery or return to the in-person format if possible</p>
<p>A subset (8/15) of IQ cases was modified to alter the gender, ethnicity, sexual preferences, preferred pronouns and other characteristics of the patients as part of the diversity initiative announced in March 2020</p>	<p>Based on Jonatha Gott’s pre-screening and objections from a couple of IQ authors, some proposed changes were rejected. A few returning facilitators commented but understood the changes once the rationale was explained</p>	<p>Neither the remaining authors nor the students expressed concerns about the changes  No further changes planned</p>



<p>Although Poll Everywhere was not available for the lectures, an interactive format was adopted for the Molecular Biology and a subset of Genetics review sessions; a whiteboard in Ron Conlon was used for Development reviews</p>	<p>The quiz format used early in the block and the practice problems used later for Molecular Biology were both well-received, as were the formats for Genetics and Development reviews</p>	<p>If we are able to return to the HEC, the Avocor will (hopefully) be available, as it was superior to the review formats used during the 2020-21 year, especially for Development</p>
<p>In addition to eliminating the Cancer TBL, a number of changes were made to the remaining TBLs, which combine Genetics and Molecular Biology content, as outlined below</p>		
<p>The format was modified to eliminate the IRAT/GRAT, prompting a name change to "Active Learning Sessions," a feature that had always been problematic, especially for the first (Cystic Fibrosis) TBL, for which it was particularly difficult to devise "wrong" multiple choice answers</p>	<p>The new format was very well received as indicated in both the numerical ratings and the students' narrative comments (see Appendix III)</p>	<p>The format change will be retained but the name will be changed to "Active Learning in Teams" (abbreviated ALT) since ALS is the acronym for a repeat expansion disorder (the general topic of the second TBL/ALS/ALT)</p>
<p>A larger number of facilitators (10-11, dropping in on individual Zoom rooms, vs. 6-7 split between two in-person TBL rooms) were used due to the remote format</p>	<p>The additional group prep time necessitated by the on-line format was most likely a bigger factor in the higher ratings than the number of facilitators <i>per se</i></p>	<p>No changes if the ALT sessions are remote, and if we return to in-person delivery, we will proceed with our original plan to assign a defined role to each person including a "floater" to ensure coordination between the two rooms</p>
<p>To accommodate the 1-hour HTS lecture and the 1.5 additional hours claimed by Cancer (see below), a total of ~2.5 fewer hours was devoted to Molecular Biology, mostly at the expense of the TBLs (a.k.a. ALS/ALT)</p>	<p>Elimination of the IRAT/GRAT was insufficient to make up the time, and the other changes introduced (cutting the prep lectures to ½ hour and the time for the application exercises to 60 minutes for TBL#1 and 70 minutes for TBL#2 were perceived to be detrimental by both the students and facilitators</p>	<p>The ALT prep lectures will be returned to their original time frames with expansion of the application exercises to reinforce other concepts</p>

<p>We also mapped each exam question (4 per vignette, 5 vignettes total) to a specific LO in an IQ case, lecture, and/or TBL/ALS</p>	<p>All vignettes included questions from multiple disciplines and the vast majority of questions were related to more than one session, generally in more than one format</p>	<p>Ditto</p>
<p>We checked the wording of individual questions for clarity and carefully reviewed the order of questions under each vignette to ensure that the sequence accurately reflects the patient's progression</p>	<p>Ditto</p>	
<p>We were more assiduous about the requirement that graders provide a rubric to explain how they assigned scores</p>	<p>All but one grader adhered to the requirement to take measures to ensure consistency in grading</p>	<p>We hope to replace the recalcitrant grader (who is also a Design Team member)</p>
<p>Joe Bokar's last act as the Block 2 co-leader was to reorganize the Cancer curriculum including changes to the content, lecture format and recruitment of new lecturers beyond those who gave essentially the same lecture that he has been giving for several years. The most important changes were as follows:</p>		
<p>In addition to moving the cell cycle lecture so that it would be juxtaposed with the Cancer content, it was paired with a related topic, apoptosis and integrated into a single one-hour lecture</p>	<p>George Dubyak did an outstanding job with this new lecture, which was well received</p>	<p>No further changes in the position or content of the lecture</p>
<p>Dr. Hillard Lazarus was recruited to give two lectures, one new ("Stem Cells and Regenerative Medicine") and another to replace one of Joe's lectures ("Hallmarks of Cancer")</p>	<p>The new lecture was poorly received, possibly because it was not tied to any other component of Block 2, and the other lecture did not fare much better, possibly because Dr. Lazarus elected to use his own rather than Joe's slides</p>	<p>The Stem Cell lecture, which focused mostly on technical aspects, will be eliminated as such but essential concepts will be covered by Ron Conlon. Another lecturer (possibly a new Design Team member) will deliver the "Hallmarks" lecture</p>

Dr. Mark Jackson delivered the lectures on “Oncogenes” and “Tumor Suppressor Genes”	These were very well received	No changes (Mark has agreed to give the lectures despite resigning from the Design Team)
Dr. Steve Fink delivered the lecture on “Carcinogenesis”	This lecture was also well received	No changes
To replace the Cancer TBL on Cancer Diagnostics, two new lecturers who are active clinicians were recruited and paired with Dr. Smitha Krishnamurthi and Dr. Jacob Scott. These lectures used a very open format in which students were encouraged to ask questions	These lectures were very well received	No changes
We (I) modified the end of block survey form to more closely reflect the content and methods of delivery for Block 2 (see Appendix III), with specific changes listed below:		
We requested, and were granted, a separate time slot for the students to evaluate Block 2 vs. Block 7	We believe this change is partly if not entirely responsible for the much larger number of comments received this year	No further changes
The wording of the student prompts was modified to include the phrase “constructive and explicit”	The request was more closely adhered to under the “strengths” section than the “ways to improve” section but overall a significant number of useful suggestions were received, some of which have been incorporated into the plans described below	No further changes
Because the basic science disciplines in Block 2 are under-represented in the IQ cases relative to the clinical disciplines, the organization of the survey was revised	The improvements in some of the numerical ratings were quite informative (see Appendix III)	We will further modify the form to improve the organization and tweak the wording of some questions

**6. What changes do you anticipate making to the Block next year (AY 2020-2021)?**

Aside from the changes outlined in #4 and 5 above and #8 below, we do not anticipate making major changes to either the Block 2 content or organization during the 2021-22 academic year. We will, however, continue with efforts to add an MD with Reproductive Biology expertise to our Design Team to present and receive feedback on the IQ case.

**7. What successful, innovative components of your block that are best practices that you would like to share with the other Blocks?**

Because Case TBLs do not strictly adhere to the prescribed TBL format (most notably by not grading the IRAT), and the elimination of the IRAT/GRAT component was specifically commented on in our student evaluations as a plus, we suggest that other blocks might want to consider modifying or eliminating this component of their TBLs.

**8. What specific changes (lectures, TBL, IQ cases, other) do you plan to make to the course next year?**

<b>Changes anticipated for next year</b>	<b>Reason for changes (evidence)</b>
Further changes will be made to the Block 2 schedule to improve coordination and integration between the lectures and IQ cases including:	
Providing the students with a color-coded, easy-to-follow schedule for the block that includes Block 7 and 8 sessions, similar to the one provided to faculty members (available upon request)	Student suggestion

**9. Please review your Block objectives. Have you added or deleted major concept areas to your Block?**

No major concept areas were added or deleted, but the Overall Block Goals included online were modified to be more comprehensive and emphasize integration among the various disciplines (see Appendix II). The manner in which the disciplines were presented to the students in the introductory lecture was also modified (see Appendix I).

**10. Describe how faculty teaching quality was reviewed for your block. What faculty development opportunity was offered in response to student feedback?**

Overall, teaching evaluations were strong with 13/15 Block 2 instructors rated at the middle of the block and 15/16 instructors rated at the end of the block receiving mean scores

between 4.0 and 5.0 (Block 7 and 8 Instructors were excluded from these counts.) We will continue our efforts to improve coordination between lecturers and to ensure that lecturers are aware of IQ case content and urge them to cross-reference it in their presentations.

## **11. Response to PEAC Report**

Dr. Jonatha Gott, the Block 2 Leader at the time of the 2018 PEAC Report, included a 3.5-page written response to the recommendations as part of her Action Plan presented at the Block Leaders' meeting in February 2019. No new recommendations have been received from PEAC since then, but the current Block leader continues efforts to improve integration between lectures and IQ cases, improve coordination between lecturers, and reduce the number of "cameo" (single appearance) lecturers. Coordination during the 2020-21 academic year was also aided by providing lecturers with a simplified version of the block schedule that uses different colors to highlight each of the seven disciplines. Revising the schedule for the 2021-22 academic year has been facilitated by having easy access to the 2020-21 lecture videos.

One PEAC recommendation that was not implemented until the 2020-21 academic year was to introduce a lecture devoted to high throughput sequencing and other genome-wide approaches. In previous years, several lecturers referred to whole genome or whole exome sequencing but the methodologies and their uses in modern diagnostics were not explained in sufficient detail to be useful to the students. As noted above, this lecture is more relevant to the Cancer Biology modules and will be moved to a later point in the block.

## **12. Challenges**

Compared to the major challenge we faced last year, replacing Dr. Joseph Bokar, who served as a key lecturer and the main coordinator of the Cancer Biology section of the course, we anticipate relatively smooth sailing this year. Dr. Laure Kassem (Endocrinology) has done a superb job as Joe's replacement and her efforts are greatly appreciated. We were also successful in recruiting multiple new Design team members to fill gaps in expertise.

An area of concern that remains is the lack of a suitable MD with expertise in Reproductive Biology to replace Dr. Angelina Gangestad in presenting the IQ cases. The Design Team member who nominally replaced her several years ago has been increasingly less reliable over the years both in presenting the IQ cases and grading the exam. Fortunately, Dr. Sam Mesiano, PhD, who was new this year, filled both of these roles during the 2020-21 academic year, for which we are very grateful, and Lina continued to grade one question on the exam and to provide crucial advice to the Block Leader.

Although another DT member, Mark Jackson, resigned this year, he will continue to lecture, and his absence will also be felt less acutely because we have recruited two other members with Cancer expertise, Dr. Jennifer Yoest and Dr. Jacob Scott. Dr. Scott also serves as a

very effective lecturer and we are hoping that Dr. Yoest might step in to deliver the “Hallmarks of Cancer” lecture.

One impediment to recruiting (and retaining) DT members is the amount of time required to grade the exam. This has been remedied for some disciplines by identifying content experts who do not otherwise participate in the course. However, more effort is needed, especially in the area of Reproductive Biology.

Looking to the longer-term future from the perspective of the recent past, we are acutely aware that multiple Design Team members including the Block Leader are nearing retirement age and, as of yet, no obvious replacements have been identified.

### **13. Acknowledgements:**

First and foremost, we want to thank **Dr. Jonatha Gott**, who stepped down as Block 2 Leader in the spring of 2019 after 6 years in the post and continues as a valuable member of the Design Team, IQ Facilitator and TBL lecturer and facilitator.

Second, we want to express our sincere gratitude to the past and present members of our design team for their dedication to continuously improving the block content and delivery and for taking the challenges of moving to remote delivery in good stride. We are also grateful to the other faculty members who contributed to the block in various ways as lecturers, IQ facilitators, TBL facilitators, etc.

Third, we want to extend our heartfelt appreciation to the Block 2 course manager **Nivo Hanson**, who has always done an incredible job of shepherding us towards our goals but stepped up in a big way to ensure that remote delivery of lectures and TBLs went smoothly. Nivo is truly instrumental in making this block a success.

Fourth, we gratefully acknowledge the considerable support received from the office of assessment, especially Dr. Klara Papp, who patiently guided us through a number of successful measures we took to improve our assessment of outcomes.

The tremendous work done by Celinda Miller in pushing us to update our IQ cases in a timely manner and ensuring that facilitators were where they needed to be was another crucial element of Block 2's success.

Finally, we wish to thank the AV and IT technical support teams, especially Paul Salzgeber, Megan Slabach, Darin Johnson and Eric Bloss for helping to make the transition to remote delivery a little less painful.

**Class of 2024 was asked questions of Block 2 components. Results are reported below as compared to results of previous three years. Responses/Expected: 180/183 (98%)**

Percentage of Students who rated “Very Good” or “Excellent”

#rating scale was “Good or Excellent”

\* rating scale was “Well” or “Very Well”

\*\*wording was changed to Approachability/accessibility of faculty in 2020-21

Indicates higher rating (>10%)

<b>Block 2: The Human Blueprint</b>				
<b>General Block Aspects</b>				
Block Components	2017-2018 <sup>#</sup> %	2018-2019 %	2019-2020 %	<b>2020-2021</b> %
Approachability of faculty**	83	72	57	<b>70</b>
Effectiveness of large group lecturers	63	56	36	<b>52</b>
Effectiveness of IQ cases	85	83	83	<b>80</b>
Effectiveness of team-based learning (TBL) group activities	35	33	26	-
Overall quality of this block	74	58	29	<b>64</b>
<b>Block Concepts/Integration of Block Concepts and Longitudinal Themes</b>				
Endocrinology*	94	91	88	<b>90</b>
Reproductive biology*	74	73	69	<b>83</b>
Development*	35	49	36	<b>53</b>
Genetics*	89	87	81	<b>74</b>
Molecular Biology*	52	59	48	-
Cancer Biology*	83	78	83	<b>84</b>
Cell Physiology*	52	60	48	-
Cell Biology*	-	-	-	<b>52</b>
Clinical & Basic Science Correlation Series*	63	59	57	<b>53</b>
Bioethics	57	51	64	<b>52</b>
GARLA	--	--	60	<b>55</b>
Histopathology	81	44	64	<b>66</b>

Indicates lower rating (>10%)