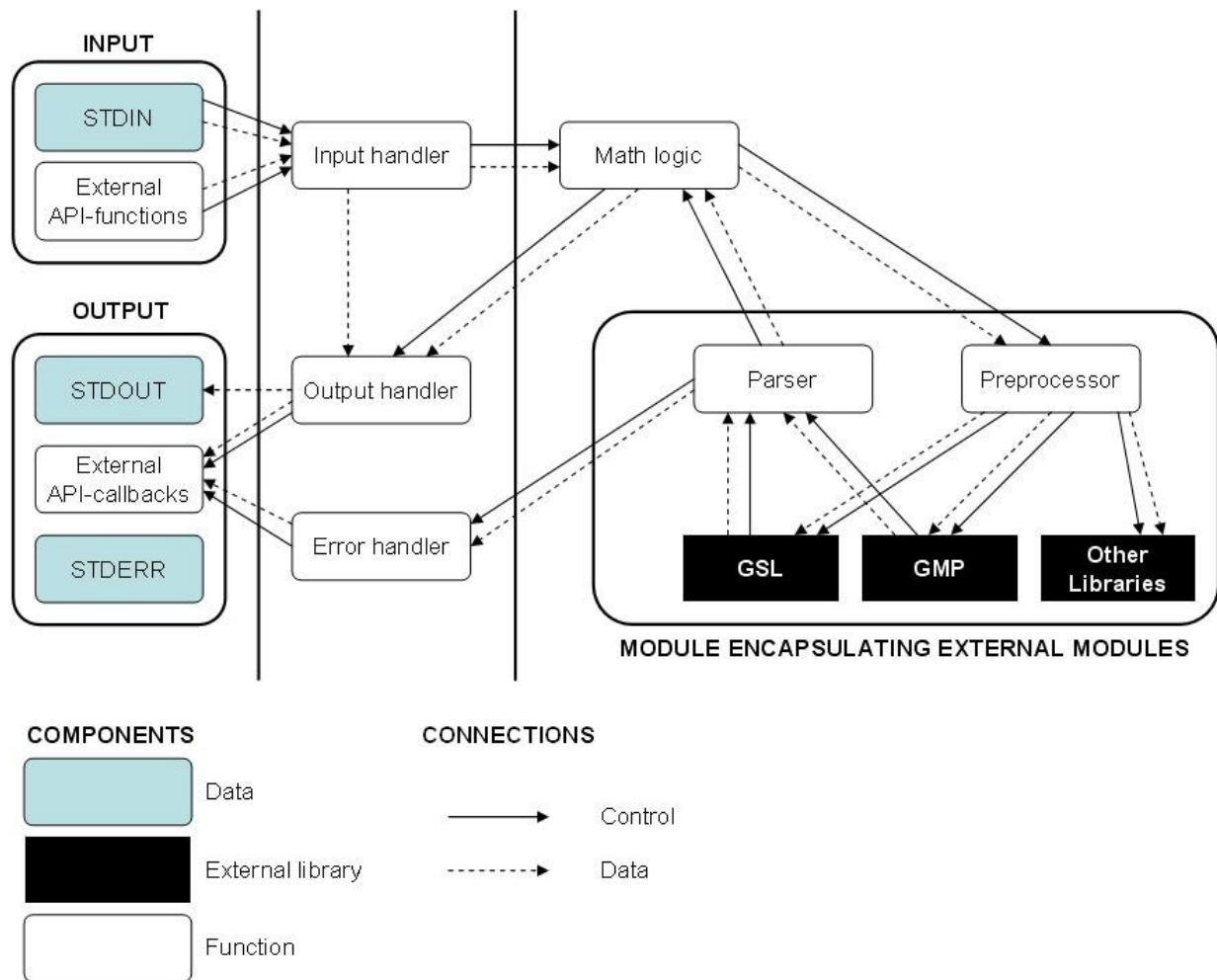## 2.2 Overall Architecture Description



## 2.3 Detailed architecture

The input handler reads input either from standard input or from external API-functions, determining its format and preprocessing it for the math logic, passing the determined output format to the output handler and passing control to the math logic. If the input is not correct it passes control and the error is passes to the error handler, but always passes the output mode (to the external API-callbacks or to standard output) to the error handler.

The math logic processes input, calculating the specified equilibria by means of reductions to external libraries accessed by an encapsulation of them, passing the data for the calculations to the encapsulation and once the calculations have completed passes the computed equilibria to the output handler.

The output handler, having received the output format from the input handler and the control handler to the output handler either passes control and data on the specified format to the external API-callbacks, or to standard output.

The error handler recieves control from the input handler or from the
encapsulation of of the external math libraries used by the math logic and
passes control and the error either to the external API-callbacks or
writes the error to standard error.

The encapsulation of the external libraries consists of a preprocessor
which receives control and data, preprocessing it and passing it to GMP,
GSL, or another library which in turn pass control to a parser, which
either passes control and data regarding the error to the error handler or
passes data and control to the module from which it received data and
control.

CRC Cards
The following Class Responsibility Collaborator(CRC) cards illustrate how the responsibilities of
various tasks are distributed throughout the system.

*Input handler*
Responsibilities:
-Determine input to pass on to correct math logic function.
Collaborators:
-Math logic

*Math logic*
Responsibilities:
-Receive data and calculate appropriate results by use of external libraries and forward these to
output handler.
Collaborators:
-Input handler
-Module encapsulating external modules
-Output handler

*Error handler*
Responsibilities:
-Generate appropriate message if an error were to occur.
Collaborators:
-Module encapsulating external modules

*Module encapsulating external modules*
Responsibilities:
-Make appropriate calls to external libraries and handle the flow between these and math logic
function.
Collaborators:
-Math logic
-Error handler

*Output handler*
Responsibilities:
-Return requested results.
Collaborators:
-Math logic